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English Artisans on the Paris Exhibition.

THE Society of Arts, as some of our readers will remember, organised a large deputation of artisans to the Paris Exhibition of 1878, each commissioned to investigate and report upon the exhibits illustrating his own craft. The collected reports are published,* forming a thick volume of over 650 pages, containing some superfluous matter, but also a great deal of practical and interesting reading. We may dismiss the one fault we have to find with the book, as a book, its redundancy, by saying that this appears to result from putting together in one volume reports which were written separately, and which it appears are also to be published in separate parts at the price of 6d. each, for the instruction of the respective classes of artisans whose works are treated of. A little excision for the purposes of the book would have brought the volume more within compass, and avoided some of the pretty frequent repetitions of the same kind of reflections, and of information upon the social state of the working men and their families in France and England, and other general subjects of that kind.

The object of the undertaking we presume to have been to afford each branch of trade that was represented the advantage of a report upon the various classes of work given from their own point of view. Whether it has been supposed that the public at large would benefit by having the opinions of working men on the work,—that there would be an opportunity of gaining in this way a different kind of criticism from that which is commonly published on such occasions, we do not quite understand. Presuming that there may have been such an object, we should say that on the whole there will be found in this collection of criticisms less to distinguish them from ordinary published criticism of the best kind than might have been expected; more "æsthetics" and less of purely practical comment. But, as every one knows who has the opportunity of seeing much of the most advanced and cleverest men among the ranks of artisans, the line which separates them, in taste and education, from professional men, is becoming fast obliterated by the higher progress of culture among those who work into their hands; and there would be, in fact, very little to show in the reports included in this book that they were the reports of working men, to a reader who was not aware of the fact. In one sense we should have perhaps preferred it if there were a little more speciality about them. We can get "æsthetics" elsewhere, and we should have said that some of the reports would have been more useful and interesting in proportion to the amount of matter if the writers had confined themselves more to considerations of the *technique* of their respective crafts. They, however, seldom wander into the unmeaning generalities of the irresponsible newspaper correspondent on such subjects. While the Exhibition of 1878 was open we saw sometimes, as on other similar occasions, statements in the papers that "Mr. —— had gone to Paris to furnish descriptions of the Exhibition for" some leading daily paper, and we know, perhaps, well enough that the gentleman named had no qualification whatever for the task beyond "the pen of a ready writer," no knowledge of art or of art-workmanship, and that he must inevitably be nothing but the channel through which to deliver, in sufficiently literary form, whatever was poured into him by probably more or less interested informants. We may certainly think that the truth of the matter would have been got much better from some of the contributors to this volume, though their periods may not be so well-turned as those of the practised newspaper writer. We have instances here and there in the book which illustrate exactly the point in which an artisan critic is strong where a newspaper correspondent would be weak; we find here and there the remark by one of the contributors that the representative of some firm "tried very hard to convince me that their work was superior to so-and-so's, but I did not see it," and one or two reasons are given. The regular newspaper correspondent would probably have swallowed the information thus volunteered, and posted it home as his decided conviction.

There is a great deal to be noted in turning over the pages of the book which is interesting, and on some of the points which struck us in regard to the subjects most connected with architecture and arts of design we may make a few comments. Nearly forty subjects are treated of by as many reporters,* from which of course we can only select a few for comment.

In regard to the pottery department, it is significant to notice that the principal makers in this art seem to have shown almost the only instance of practical jealousy of the visit of the English artisans which is recorded, the author of the first report, Mr. Frank Harris, having been denied access to the works or studios of MM. Machereau and M. Wiven in spite of special request in his favour by Sir Philip Owen. This looks as if the French were considerably afraid of us in this branch of artistic manufacture. It is worth note, also, that the reporter found it impossible to obtain any reliable information upon the rate of wages in the French pottery trade; "the instant the subject was broached the conversation was discontinued." No special reason is suggested for this reticence; we presume it must be set down to the fear of being underbid by the English artisans; but all this mystery looks as if there was a consciousness of weakness. The genius of Tinworth, the artist whom Messrs. Doulton's system has brought to light, is, we are told, fully shown by numerous works "that stand quite alone in this great collection," which we can very well believe, even after due allowance for feelings of nationality. In spite, however, of the conclusions to be deduced from the reserved and jealous spirit manifested by the French employers and workmen, the report certifies that France is the only rival we need fear in ornamental pottery.

"The classes of goods she excels in are decorated china, painted majolica, and terra-cotta. The decoration of vases at a lower price than that estimated for with our English goods appears to be due to several circumstances which operate in favour of the French. In the first place there is not so much risk incurred in making articles in several small pieces as there is when the ornament is constructed in one piece, as with us, and when, therefore, if one piece is spoiled, the manufacturer sustains the loss of labour and material of the whole. If, on the other hand, the foot or cover of a French vase be bad, the body may be excellent, and only a new foot is required, which can be made without much extra cost, and mounted in the place of the first cover or foot. Then, again, the handles can be fixed to the French vase, and made to hide marks that would otherwise condemn the piece as useless. Also, each part being separate, it can be more easily decorated."

These remarks are interesting as illustrating the differences in the English and French systems of work; but we quote them chiefly to express our decided conviction that the superior expense and trouble entailed by the English system is well worth going to for the sake of getting the articles in one piece. Pottery made in separate pieces has not nearly the value and permanence of solid articles, and we hope no effort after economy will induce the adoption of the piecemeal system by English makers. In articles of a higher class than those already named, the Report judges that we leave the French far behind, "and with the exception of the size of the Sèvres vases and the frescoes by Deck,

* The Society of Arts Artisan Reports of the Paris Universal Exhibition of 1878. Dedicated by express permission to his Royal Highness the Prince of Wales, K.G., president of the Royal Commission. London: Sampson Low & Co. 1879.

* In the separately published parts at 6d. each before alluded to, these subjects have been collected and classified so as to reduce them to eleven heads, viz.:—

1. { Pottery and Glass. Part I. / " Part II.
2. Art Workmanship.
3. Mechanical Engineering.
4. Agriculture and Horticulture.
5. Building Trades.
6. Cabinet Work.
7. Watch and clockmaking, jewelry, and optical instruments.
8. Printing. 9. Textile fabrics.
10. Leather and India-rubber.
11. Mining and Metallurgy.

they cannot show any piece of work in regard to which we cannot show two to equal theirs."

All the reporters in the pottery department agree in giving, as might be expected, very high praise to the Japanese work, one of them placing it above everything else. These ingenious people likewise showed a good many "potters' puzzles," such as "an inner and outer vase united into one piece by joining together at the upper edge and at the foot; the outer shell being splendidly perforated, while the inner lining is most elaborately painted in various colours, all executed by inserting the pencil through the perforated interstices of the outer vase. The manner in which these combined difficulties are conquered is really wonderful." This, however, is something like playing on one string on the violin, the merit being in the difficulty of doing it at all. There is one remark in regard to the Japanese work which shows considerable penetration. After remarking on the apparently instinctive knowledge of the Japanese artist as to the best way of arranging and balancing the masses of colour, Mr. Aaron Green adds, "Is this the result of serious study of fixed principles, or are such agreeable, harmonious, and complete designs fixed upon his mind by mere habit, communicated by the traditions of his school?" Originally, we should imagine, the fine colour and tasteful arrangements of Japanese ornamental work was a good deal the offspring of the intuitive eye for colour which one nation has and another has not; in the present day one may shrewdly suspect that a good deal of it is a kind of acquired tradition. The Japanese can hardly be great sticklers for artistic principle, or they would not show the readiness which they do show to adopt European manner in design in order to get a new market. Their apparently totally unconventional way of arranging the applied design without any reference to symmetry or to its relation to the form of the object ornamented, which was a new charm when it was first brought under the notice of Europeans, is becoming a mere convention imitated arbitrarily now by designers of other nations, a fact which is specially commented upon in the report; and it may be doubted whether this irregularity and disregard for symmetry is really the truest principle of ornament. To some of it there might really be applied the criticism which we find in Mr. Bedford's report on the terra-cotta exhibits; speaking of Mr. Mussill's work of this class, it is observed "his designs have the great merit of originality. It is too commonly the practice of painters on pottery to take any print or engraving which appears suitable, and transfer it bodily, or with slight alteration, to the article to be decorated. It need scarcely be pointed out that in the majority of such cases the forms and lines of the ornament do not harmonise with the contour of the object." This is perfectly true, and the remark is by no means uncalled for. Another fact mentioned in the same branch of the report is of interest, viz., that among the terra-cotta works sent by Madame Ipsen, of Copenhagen, are some very successful adaptations of Trojan forms from the Schliemann collection, "not mere copies, for though the forms have been taken with but slight alteration or improvement, they have been decorated in gold and colours with perfect taste and in true keeping with the style;" and it is added that Dr. Schliemann himself had expressed great pleasure at the use which had thus been made of his collection.

The department of terra-cotta which is devoted to building purposes is said to have been best represented out of England by the Wienerberger Company, of Vienna. The French terra-cotta building material is said to be very unsatisfactory; that of Messrs. Doulton the best. There is some special comment bestowed upon the new terra-cotta slab system of Mr. Lascelles, about which we have already felt bound to express an opinion much less favourable than that which is claimed for it, and the report here given of it certainly is not practically in its favour.

Wood-carving is one of the subjects in which the English exhibits are judged in the report to have been decidedly inferior to those of some other nations, the French and Italian in particular. The author of the report, Mr. W. H. Howard, does not consider that what was sent to Paris represents the best art of this kind that England can produce, and considers that the exhibitors lowered the artistic value of their exhibits by aiming at quantity rather quality, and treating the whole thing as if it were a mere bazaar. Still, he is of opinion that English wood-carving does not equal that or France and Italy, even at its best, and he gives some of what he considers the reasons for this inferiority. Want of patronage for one thing: many of our wealthier people "scour the Continent for articles of *vertu*, and give large sums for foreign works of art, quite regardless of the presence of talent at home." Want of real interest in the work as an art on the part of the heads of large workshops, who live in handsome houses, and draw the profits without taking real interest in the advancement of the work artistically. Various expedients are resorted to to obtain great profits. "In some places foremen are engaged for their 'nigger-driving' qualities. . . . In some cases the carving is given out to a man who takes it at a price, and employs men to do the work, and they then generally execute it by the piece-work system." This, as the writer says, may be a very good system to increase profits, but is certainly not conducive to good and artistic work. But the writer of the report also complains that the English wood-carver has not so much opportunity of improving himself as his brethren over the water have. The churches in Paris, which contain much fine carving, are always open; those in London are generally closed, and the portions of our two cathedrals which contain the most and the finest work of this kind are not accessible without special permission. In the Jardin des Plantes at Paris there is a portion of the ground arranged for students and artists, who have permission to pass between the plants and examine and copy them. As Mr. Howard says, a man who stooped to examine the flowers closely in Hyde Park, would soon have a policeman telling him to move on. There is Kew, however, which should be of some use in this way. The British Museum, he observes, is only open at the time when a working man cannot visit it. This is an inconvenience felt by many literary workmen as well, and we trust the electric light may really do something for us in this case. We have no places open on Sunday, the day of leisure of the working man, and our schools of art, as at present conducted, are hardly the kind of thing the art-workman wants; they are too slow a process and too costly. This, also, we believe is a true bill. A man may know very well in what particular thing he wants to improve himself; but the art-school will demand that he goes through a long routine before he reaches the special point in which he wishes for improvement. In regard to stone carving there is a very brief report, concluding with the opinion that no one can take a brief survey of the streets and public buildings of Paris without being convinced of the superiority of French stone-carving; but the reasons of this superiority the writer does not undertake to decide off-hand. We should be disposed to say rather that French stone-carving exhibits a different kind of excellence from the best of ours,—more refinement and finish, but less force. A great deal of our carving in modern Gothic buildings is, however, very bad; and we should be disposed to say that some part of this is due to the wrong feeling impressed on the workman by some of our modern Gothic architects, who were always preaching that "vigour" was the thing, and the carver not unnaturally supposed there could not be too much of a good thing, and degenerated from vigour to coarseness.

In the report on plastering we find, again, evidence of the impression which Parisian decoration makes on the eye of the English artisan. The plain plastering, says the report, exhibited nothing for special comment; but in ornamental plastering "every building seemed to excel its neighbour in the quantity and quality of the enrichments, which are everywhere introduced with consummate taste, with just proportion, and in good keeping. This seems one of the principal advantages that have been gained in the buildings of Paris. Ornament is before the eye wherever it turns, either in wood-carving, in stone, marble, plaster, or other composition, and, notwithstanding the great quantity of ornament, there is none that seems overcrowded or misplaced." The writer of the report (Mr. M. Curley) adds his conviction that the superiority of French ornament of this class is due in great measure to the ornament being more carefully studied before it is carved than is the case with us; "it is not left altogether to the carver and modeller to design and execute in a hurry, and in a time that is only sufficient for one of the two branches, as is, unfortunately, too often the case in London, to the production of so many blunders." The writer speaks, he adds, from sixteen years' experience as a modeller.

But in brickwork the report places Paris far in the rear of London. This is not surprising, considering the attention which has been given to brickwork in London lately, and the ambition of makers and bricklayers to rival each other in producing the best work that ornamental and moulded brick is capable of. The writer of the report on bricklaying seems to have been very disagreeably impressed with the monotony of Paris streets after London.

The report on furniture is a long and full one, the real competition being, says Mr. Patterson, who makes the first report, between England and France. The French furniture he characterises as limited in its range of style. "There is," he says, "in the French department a magnificent show of furniture of the richest kind, some of it extremely beautiful, and most of it well constructed, but there are not many marks of originality or progress. The English section seemed to me to present more signs of life and energy;" and this is very much our own opinion. He specifies a room designed in the Queen Anne style as extremely attractive, but, at the same time, wanting in adaptation to the present time. Another remark which he makes we cordially endorse: why are not the names of the workmen who make the furniture given? How, as he asks most pertinently, can workmen be expected to take any real pride or interest in their work when, in an exhibition intended entirely to distinguish good work, their names are ignored? There ought, in our opinion, to have been a stipulation that whatever was exhibited should bear the name of the real maker, as well as that of the firm who "exploited" him. The writer mentions the French firm of Christofle as an honourable exception in this respect; they took pains to publish the names of their chief workmen, and to state what was done by each.

The report on cabinet-work, by Mr. Henry R. Paul, is very well written, and is particularly to be commended for the importance which its writer attaches to the relation between construction and decoration in cabinet-work. In this respect much of the French furniture, which he describes as perfectly dazzling in its multifarious display of highly-polished carving, mostly of splendid execution, is inferior to the English, in the fact that it is so crowded with carving that the construction is in entire subordination to the ornament. In the matter of beauty, France is first in furniture; the Italians achieve a splendid outside appearance, but the construction is very flimsy; in fact, he says, their work consists of splendid pieces badly and incongruously put together. "The English, on the other hand, build their furniture on thoroughly correct principles, as a rule; but beauty, although there is great striving after it, is always a secondary consideration." The Italian makers, on the other hand, will put the finest inlaid and engraved ivory work on wood only fit to be used for packing cases. The remarks on Russian furniture, of which few of us in this country know much, are interesting. He says "the style is so thoroughly savage and uncivilised that the furniture is quite unique, but at the same time it cannot be said to be ugly. On the contrary, much of it has a very pleasing effect. There is such a striving after solidity, that one might really fancy that some of the articles had been made out of one solid piece of wood. One thing worthy of notice is the absence of French design among them. . . . Most of the smaller nations seem to have followed to a great extent the French designs; the consequence is, unfortunately, that we get numerous repetitions of bad French work instead of some national styles which might be worked out and improved upon, and which must always be interesting." The Japanese furniture he characterises as "quips and cranks," which is about what it is. The English furniture he speaks of with enthusiasm, especially the specimen that won the grand prize for Messrs. Jackson & Graham, and adds, "it is something, when the skill of the workmen of the present time is so pertinaciously cried down. . . . when Dean Stanley was to be heard telling a meeting in Westminster Abbey, composed expressly of working men, that the patient skill of their forefathers had gone from them, and that they thought only of what they got for their work, and not of the work itself,—it is something that we can point to a production such as this is, an article

which I believe represents a greater number of difficulties overcome, a larger effort of patient skill, than any other single piece of woodwork in existence." It is sad to learn, in fact, that one of the able hands employed on it suffered mental injury in consequence of the severe study required for the execution of the work, and died just before it was completed. The writer admits, however, that this was an exceptional piece of work, and the degree of truth which there certainly is in what Dean Stanley is reported to have said, cannot be rebutted by the instance of one *tour de force* for a special object. The characteristics of other furniture of English makers is gone into at length, with some very cutting remarks upon certain exceedingly "truthful," but, as Mr. Paul considers, very ugly furniture; remarks in which we concur from our recollection of the kind of thing described, though we hardly sympathise with the writer's feelings in regard to veneer entirely; it is a kind of necessity in some respects, but still veneered furniture can never, we should say, be regarded as representing the highest class of furniture-art. The report is, however, admirably written, —the best, from a literary and critical point of view, of the whole. There is a second report on cabinet-making, by Mr. John Fraser, which also seems a good one; but we must close.

There are, we may observe, introduced here and there in the reports some very interesting notes and reflections on the relative social state of English and French artisans, so far interesting, in fact, that we intended to make them the subject of some comment had not our remarks already run to rather too great a length. We may possibly say a word on this part of the report another time.

ARCHITECTURAL LUCUBRATIONS, WITH A PRACTICAL PURPOSE.

It might be regarded as a paradox to say that the idea of grandeur is inconsistent with the indication of size. And yet there is a sense in which such a remark may be made with justice. Great magnitude is, no doubt, at times an element of true grandeur. But such magnitude must be that of the whole object which impresses the mind, not that of a portion of the object. We can admire the grandeur of the head of the Jupiter of Phidias when we regard it as represented in a bust; but if that sublime head were placed on a body of inferior dignity, while the majestic lineaments would be unaltered, the effect produced on the mind would not be that of the grand, but that of the grotesque. In the same way, if any architectural object be so proportioned as to give the impression of enormous magnitude in any particular feature, the grandeur of the whole is diminished or banished. A little church supporting an enormous dome would impress us more readily with the idea of the smallness of the church than with that of the grandeur of the dome, even if, taken by itself, the latter were as noble a structure as that of St. Peter's. It is consistent with this view to hold that in order to insure the effect of grandeur in a figure or in a building, there must be that perfect and essential harmony in the proportions of the parts which shall prevent the educated eye from lighting on any small detail by which to form a scale for the estimate of the size of the whole. In this respect it is instructive to bear in mind the marvellous accuracy with which the Greek sculptors of the purest period of art wrought out the canonical proportions of the human figure. In height and in girth their dimensions are exact to the canon, of which some of the main outlines were indicated by Polycletus, and the entirety of which has only very recently been recovered by a very careful measurement of the masterpieces of Grecian sculpture. It might be thought by any one who had not given practical study to the subject, that a certain largeness of touch, inconsistent with scrupulous accuracy of detail, would give breadth and grandeur to a statue. That there is a breadth of handling characteristic of the Grand Greek Era no sculptor can doubt. But that this touch is subordinate to the most accurate definition of the main metrical proportion of the human body is an incontestable fact. How much of the grandeur of the style may depend on this mathematical exactitude it is not easy to pronounce. But that the two elements are closely connected, if not absolute functions of one another, may be learned from observing how the grandeur of the original evaporates in those Roman copies in which accuracy is far from being perfectly observed.

We are thus led to regard the impression of awe which is produced by a Grecian temple on the mind, as differing, in the method by which the idea of sublimity is sought, very widely from the treatment of the Gothic architect. To the traveller who stands on the mountain crest that parts the lovely bays of Naples and of Salerno, and who sees, gleaming clearly through forty miles of transparent atmosphere, the solemn temples of Pæstum, majestic at that distance, and only more majestic the closer they are approached, somewhat of the same feeling is present, as to him who paces the floor of the lofty nave of St. Ouen, and who almost shudders when the marks of the sacrilegious use made of that unrivalled church by Robespierre (to whom, at least, the patches on the marble floor are attributed by the sacristan), are explained to him in a half whisper. They are the marks of the forges erected during the revolution; when this noblest of Christian fanes was turned into a smithy. But the methods of the artists who built the two sacred buildings are so wide apart, that we have to look with some curiosity for the reason that so similar an impression is produced on the mind by two such different specimens "of temples old or altars new."

To pursue the inquiry we must bear in mind that, although the geometrical proportions of a building constitute the main features, they do not form the whole of its character. These proportions may be compared to those of the animal skeleton; and, as such, to those animal skeletons which are external, and which thus meet the eye directly. The skeleton of the vertebrated animals, being for the most part concealed by plumage, fur, or skin, does not so fully allow of a comparison with the geometric design of a building, as do those external articulated forms of shell, or horn, or carapace, which at once define and include the living tissue of the *insecta*, of many of the scaly reptiles, and of the cartilaginous fish of the ancient ocean.

Still, even in these cases, the skeleton, however well preserved, does not convey the idea of the living animal. No more striking instance of this can be cited than the case of the hippocampus,—the little so-called sea-horse, that haunts the shallow waters of the Mediterranean. When seen in a museum, it might be thought that it could make very little difference to the observer whether the animal were alive or dead. Its structure is composed of a series of bony links, locked one into another, like the joints of a delicately-forged coat of mail. What little there is of flesh or of tissue bears so small a proportion to this skeleton, that if in any case it might be thought immaterial, as far as aspect was concerned, whether a creature were alive or dead, this little animal might be cited as the best exemplar.

And yet, any one who has watched the little creature (which more closely resembles the usual figure of the knight on a chess-board than anything else) alive will soon become aware how utterly impossible it is to form the slightest idea of its quaint and graceful life from its solid *exuviæ*. Erect in the sea, its tiny serpentine tail twined round a stem of seaweed or branch of coral, or some small object at rest, the sea-horse looks around him for his prey. And along the back of the otherwise motionless animal plays the most wonderful spiral motion, a movement detected only by the light which radiates from a thin, transparent, prismatic fin, by which the sea-horse, no doubt, to some extent breathes, as well as regulates its movements in the water.

In a manner which may be to some extent illustrated by the above example, the life of a building has to be regarded by those who would understand what was the true idea wrought out by the architect. We are profoundly impressed with this feeling in treading the cradle of architecture on the shores of the Mediterranean. In no place, perhaps, so much as in Pompeii, do we seem fully to realise how far the presence, the temper, and the active busy life of the inhabitants must have deepened the impression produced by their abodes. The *cunei* and steps of the amphitheatres, which, at Pompeii, at Capua, at Pozzuoli, and other ancient sites, yet retain so much of their form uninjured, are remarkable instances of this. Such a structure would seem imperfect and unmeaning to those who could not, in imagination, fill the circling seat with an eager crowd, intent on the combat taking place below. So it is with aqueducts, baths, temples,—with all the glorious ruins of the Classic past, in which the soil of Italy is so rich. It is only when realising what these were when they conveyed the cool rivulets of the surrounding hills to a thirsty population, when their *tepidaria* and their *frigidaria* were crowded by the people who knew so well how to make the pursuit of pleasure a methodical occupation, or when the conscript fathers, the armed maturity of the force of the city, the noble matrons, and the shy and graceful virgins trooped to the several shrines of worship; that we can form any true conception of the outcome of Classic architecture.

Nor do we intend to overstep the line of boundary that marks off another region than that of art, when we say that there is a large number of the noblest buildings in this country, in various states of neglect, of observance, or of travestie, to which remarks somewhat of the same nature may apply. It is as necessary, in order to allow the noble relics of Fountains Abbey, or of Melrose, to produce their full effect on the mind, to be able to realise what those magnificent buildings were, when in full occupation by the services and the worshippers for whom they were designed, as it is to repeople the deserted peristyles of Pæstum.

It is thus impossible to enter into the idea of either the Classic or the Gothic architect, unless we possess at least some elementary acquaintance with the nature of the rite, or with the habit of religious thought, of the worshippers for whom each religious building was originally designed. It may seem almost a truism to say that the building should be the outer symbol,—the shell as it were,—of the rite. And yet how often do we find that primary law of design to be nowadays neglected. A Jewish synagogue, a Turkish mosque, a Vaudois temple (as this simple people love to term their present churches, such as the very noble one they have reared in Turin), or a Catholic church, are buildings designed for objects which differ in detail, however much they may be one in principle. The central act of the rite, whatever it may be, is the point on which the architect should seize as the dominant idea of his design. He should so build, if he be fit for the task, that if a convulsion like that which overthrew the Campanian cities befel his work,—if no historic record were left to say for whom or by whom the sacred building was erected,—it should be able to tell its own tale, if it were recovered after 2,000 years of burial. Such is the case with the temples and tombs of Egypt, of Greece, and of Italy. Cannot each of our readers call to mind some modern example of English architecture, perhaps one on which much money has been spent, which would either utterly perplex or wholly mislead the archæologist of 2079 A.D.? Whenever such a doubt is possible, the architect, whatever be the lighting of his building, has forgotten the lamp of truth.

Thus to illustrate a point of which it is not easy to exaggerate the importance, let us see for a moment what ought to be the central idea of each of the four buildings to which we have referred. In the synagogue, the reading of the law forms the most solemn feature of the service. The ark in which the sacred roll is kept, and the platform or stage on which the meturgemen, or readers, stand, are, therefore, the chief features of the building; nor can the arrangement, if suitable for the purpose, be readily confounded with that proper for any other rite. Again, in the mosque, the chief feature is the mihrab, or prayer-niche; indicating the direction in which lies the holy city of Mecca, towards which every Moslem is taught to turn when he prays. The Vaudois looks up to his pastor as his guide and teacher. From his lips he listens to the reading and the explanation of the sacred volume. Thus the pulpit forms the chief feature of the interior of the Vaudois church; even as in the times reddened by the bloodshed of St. Bartholomew, the King of Navarre left his bride after the civil rite of marriage had been completed, the queen going to mass, the husband to *le prêche*. Again, in the Roman Catholic rite, the altar where the mass is offered is the chief feature both of the rite and of the building; while in the Greek church the choir itself is divided from the nave by a solid wall with substantial doors, through which the priests only issue forth in procession at certain parts of the service.

We are not about to carry the comparison any further, or to refer, either directly or indirectly, to the warfare now going on between those who use the word "Catholic" and those who use the

term "Anglican" for a watchword. It will, at least, be evident that the connexion which we have pointed out as existing, in any true and well-conceived design, between ritual and building, is not likely to be impaired or undervalued by any earnest persons among us, whatever be the shade of their own opinions. But we may be allowed to refer to this principle of structural fitness as explaining the inadequate effect which the Madeleine at Paris,—not to say our own St. Paul's,—has been so often spoken of as producing. All that wealth could do; all that genius, working on certain lines, could do; has, perhaps, been done in those noble churches. If you enter in order to see a mausoleum, or a public monument, the effect is all that could be desired. It is not the case,—at all events, with many persons not incompetent to form an opinion,—when you are told that you are being taken into a church. It is not that it is impossible, or even inconvenient, to carry on a Christian ritual in either of these buildings. But that ritual is not the *raison d'être* of either of them. It is but one out of several conceivable purposes for which the structure might have been reared. That structure is one of which the original design has been borrowed from an older faith; and some sense of this fact is ever lurking in minds of a certain order.

As far as it is possible now to form an opinion of the essential differences that underlay the primary conceptions of the Classic temple and of the Christian church, we should say that they were twofold; holding, the one to the philosophy of the religion; the other, to the influence of climate. If we do not put the second of these in the first line, it is because we might thus lay ourselves open to the objection, that the climate of the cradle of Christianity, in Jerusalem, Antioch, and Rome, was the same as that of the cradle of the hero worship of Greece. No doubt that is true. At the same time, it must be remembered that the 300 years of scorn, interspersed with persecution, which looked down on the early growth of the Christian Church, had accustomed its members to meet in caverns and catacombs, in dens and caves of the earth, before they were allowed the use of the basilica. Thus, as Roman Christianity grew, it grew in the presence of a great architectural past. It had only to displace the Pagan worship, and to re-consecrate, or repair, the Pagan temples.

But in the wood-building regions North of the Alps the case was different. There society sprang anew from the soil; and the churches of the new people and new faith had to be designed and built. It was thus that the Pointed Christian architecture grew up, and as it increased in richness and in elaboration, it entwined every decoration around a dogma, and made the ornamentation of the church almost as ideal as, and often ideal with a deeper meaning than, the utterance of the pulpit itself.

The great idea that was introduced with Christianity,—or of which at least we do not find much trace in the olden faith, so far as architecture bears record,—is that of associated worship. And, as we shall presently see, this association soon assumed a special form, one calculated profoundly to impress the imagination, and to render its expression and reflection, from the chisel of the sculptor as well as from the graceful structure of the architect, at once imposing and unmistakable.

Structurally expressed, this idea of association is less apparent in the Classical fanes. In part, the difference may be climatic. Life, in Greece and in Italy, for a good half, to say the least of it, of the year, is but lived *sub dio*,—under heaven. The idea of the *chamber*,—a room in which not only to sleep, but in great measure to live,—is absent in Italian architecture. Noble halls and saloons abound. But, even in the most costly palaces, the nooks in which people are put away to sleep are usually such as no English servant would by any means condescend to adopt. To people thus living an out-of-door life, the peristyle of the temple was shelter enough for the worshippers. Their chief place of meeting was in the pro-fane, before and without the temple, except in cases of public processions,—even as in the present day in Italy, the association at a festival is not that of worship. Prayers or offerings are made apart and alone, — a matter between the worshipper and the priest. The public association is that of festival, not that of simultaneous worship.

Thus in those cases where, as at Delphi or at Elis, the religious element may be thought most powerfully to have affected the people, the whole tendency of the rites was to make religious observances individual rather than common. When the utmost efforts of wealth, power, and genius had combined to make the most imposing symbol or representation of a divinity, as in the chryselephantine statues of the time of Phidias, the number of those who could have gazed upon those wonderful creations of the sculptor at any one time must have been extremely small. The god filled his temple. The sense of awe that attended on the *cella* of the most famous interior,—especially that of the most Holy Place at Jerusalem, on the interior of which no eye looked for century after century, except once in the year, and then was fixed only on the floor,—was encouraged, rather than the reverse, by the erection of those stupendous statues in the Greek temple. The intercourse of the worshipper with the object of worship was brief, awe-struck, alone, or aided only by the priest; the joy and jubilation of the festival was that of the out-of-door festivity of the people, each having performed his own religious rites apart.

In Gothic architecture, on the contrary, the inclemencies of climate that bade the architect rear wide and lofty roofs to shelter from rain or snow the hundreds that assembled on the feast-day of a saint, or on some great high day of the church, combined with that sense of brotherhood which had been fostered by persecution to make the worship social and simultaneous. Instead of each man bringing his own victim, all together looked on while the priest offered the common sacrifice, *pro vivis et mortuis*, for the living and for the dead. What effect the words of the early canon of the Mass have had on Christian architecture has probably never been fully realised. There can be no doubt that it has been profound. Acting directly on the imagination of the artist, acting on it a second time as reflected from the minds of the people,—and light loses by each reflection,—the mass of the community of the great Catholic Church, in the unity of which death itself was but an unimportant incident, beamed forth from every boss, and capital, and niche, and shrine, and tabernacle.

We have a remarkable instance of the effect of the religious imagination in the Choir of St. Paul's. We have never heard that the great wood sculptor, Grinling Gibbons, was a man particularly devoted to what may have been thought, in his time, the relics of an old superstition. But the power of art is not limited by Queens or by Parliaments. Gibbons had to adorn Wren's choir. He did not stop to ask what survived of Rome, or what of the new order of the reformed faith. He wrought under the fervid inspiration of the sculptor. He produced not half-Christian *amorini*, ornamenting stall and canopy; but boy-angels and infant cherubs singing continually out of invisible music-books. For if these lovely heads be carefully regarded, it will be seen that they are grouped in twos and threes, each group being bound together by the direction of the eyes to a common point,—the point where is writ in air the heavenly music.

Another mode in which the association of saints and angels with the living worshipper in the same act of common worship has given grandeur to some of our noblest churches depends on the small size of the figures. Sculptors have felt, rather than said, that, of all sizes in which they can work, life-size is usually the least successful. The comparison between the life and the statue is too close. A five-eighths size, or a nine-eighths size, on the other hand, gives play to the delicacy of feeling, or to the sense of grandeur. When the latter proportion has been attempted in sacred buildings, as in the case of the colossal reredos at Christ Church,—a tree of Jesse, with figures of size-and-a-quarter or thereabouts,—the effect is to dwarf the building, unless space and proportion be ample. But when the other method is taken,—when tabernacles and niches are full of the praying, or singing, or benedictory forms of saints and martyrs, virgins and cherubs, queens and kings, and holy bishops, and martyr knights, of a size with which we are familiar as that of the younger and most charming members of the human family,—then the imagination receives a stimulus to which it at once responds, and at the same time the height of lofty nave, or slender columns, is reared into a more shadowy grandeur by contrast with the visible height of the statues which adorn the fane.

Greek religious architecture thus produced the sense of grandeur by the isolation and dwarfing of the suppliant, in presence of either the Temple, or, when present, the statue. Christian art seeks sublimity in the association of the visible with the invisible; in the silent lesson that however numerous, noble, or divine are the worshippers, the temple is more lofty than their vision can define; in the sense of communion with those who have gone before, of despising the trials of life, and of victory over the sharpness of death. Such,—to us at least,—is the utterance of Christian architecture.

ON SOME MODERN EASEMENTS.

THERE is probably hardly any branch of the law more important than that which is connected with easements, and there are few things which, on the one hand, are more important to the dominant, and on the other more burdensome to the servient tenement, than this same class of rights. Certain easements, such as rights of way, for example, are well known to most persons, but there are other easements less common which are hardly so well understood, although they may be of great value. One of these classes may be called that which consists of the right to keep certain chattels or things in the land or buildings of a neighbour. It is indeed a right which differs a good deal from such elementary easements as those of rights of way, or for water to flow on to land, which arise out of the very nature of land; but it is one which in the present day is equally valuable. Moreover, it may be doubted whether at first it was regarded by the judges so much as an easement as the possession of a certain piece of property in the land or building of another man. But be that as it may, these rights must now be considered as easements, and we propose here to notice a few of them which naturally arise out of a recent and curious case. The decision to which we allude is that of Moody v. Steggles, 48 L. J., Ch. D., 639, in which the plaintiff was the owner in fee simple, and occupier of the Grosvenor Inn, Newmarket. The defendant was the owner and occupier of a house in the High-street, to which for many years the signboard of the Grosvenor Inn had been affixed by iron fastenings going through the wall of the defendant's house. The inn itself was behind the defendant's house, up a narrow thoroughfare, and stood back, so that it could not be seen from the High-street. The cause of the action it is easy at once to state, for it was that the defendant removed the signboard, whereupon the plaintiff at once commenced a suit to have the signboard re-hung in its accustomed place, on the legal ground that it was an easement over the defendant's house in respect of the plaintiff's inn. This, it will be at once apparent, is an easement of a curious kind, differing very widely from those which arise out of the permanent condition or fashion of a building, because as soon as the house used as an inn should lose this character, the easement would also at once fall to the ground. That it is an uncommon one may also be gathered from the fact that this is the first case in which these actual circumstances have come before a court of law; though in the other cases to which we shall allude rights somewhat similar have been upheld by judicial decisions. Therefore, it will be obvious that two principles at least may be gathered from this decision,—one, that an easement may arise out of a temporary occupation of a house for a particular purpose; and next, that there need be no physical connexion between what may be termed the dominant building and the thing which causes the easement to arise.

A previous case, similar and yet differing from the present one, was decided in 1874, being that of Hoare *v.* The Metropolitan Board of Works, 9 L. R., Q. B., 296. In this instance, however, a certain public-house had had the right of having a sign-post erected on Blackheath-common. By the 15th section of the Metropolitan Commons Act, 1866, no estate of a profitable or beneficial nature in, over, or affecting any common, was to be taken away without compensation. The 13th paragraph of the scheme for managing Blackheath-common secured to all persons such estate, interest, or right as they had before the confirmation of the scheme. The sign-board in question happened to be blown down, and the point arose whether the owner of the public-house had the right to re-erect it. The Court, after an elaborate argument, decided that such right did exist, because, said Mr. Justice (now Lord) Blackburn,

"it is a right which the lord of the soil could grant."

But here, again, it must be observed that this was a right against land, and not against a building, though it is equally deserving of notice that in this case of Blackheath-common it was rather a right to have a piece of property in the land of another than a beneficial right such as that of a way across a man's fields.

But the case upon which both the two last cases were to a large extent based was that of Lancaster *v.* Eve, 5 C. B., N. S., 217, decided in 1859. Here a pile had been driven into the Thames opposite the wharf of the plaintiffs, and the defendant's barge had run against and injured it, whereupon an action was brought; and in the judgment, which was in favour of the owners of the pile, these words occur:—"There was, therefore, ample ground for inferring that there was an easement to place this pile in the river for the use of and convenience of access to the plaintiff's wharf."

But the real gist of the decisions seems to be that the property in the pile being in the plaintiffs by virtue of the leave and consent of the Crown or the Conservators of the Thames, a right of action against any one who injured this property necessarily existed. Further, in the judgment, it is remarked that it was placed in the bed of the Thames for the purposes of navigation, that is, for a temporary purpose which would cease to be of any value if the land opposite to it ceased to be occupied by a wharfinger. In Mr. Goddard's well-known work an easement is defined to be "a privilege without profit which the owner of one tenement has the right to enjoy in respect of that tenement in or over the tenement of another person, by reason whereof the latter is obliged to suffer or refrain from doing something in his own tenement for the advantage of the former." Subsequently, this same writer points out that incidents of a novel kind cannot be devised and attached to property at the fancy or caprice of any owner, and he relies upon some high authorities for this statement. But it is obvious that such rights over property, as we have been drawing attention to, are of a novel character, and we cannot help thinking that, though they fall within Mr. Goddard's definition, yet that they are not in truth, as he seems also to think, real legal easements. The word has crept into the decisions in a loose sort of fashion, but in a way which may largely and very injuriously affect property of all sorts. The instance of the sign-board is one example. For A and B to agree to such an arrangement as was illustrated by the facts of the case may be well enough, but that the house should be burdened, whoever may be the occupier, seems to be carrying too far a doctrine which originally arose out of the necessities of natural formations and natural wants. An easement to walk across a man's land to fetch water arose out of the fact that the dwellers on the neighbouring land required it to drink, and it was only equitable that succeeding owners should have a similar privilege. But when once we get rights such as those of signboards, or, as happened in another case, a right to fasten clothes-lines and dry linen on adjoining land, it becomes questionable whether the decisions are correct in law or beneficial for the interests of the community at large. The *ratio decidendi* in the case of the pile has, as it seems to us, been somewhat mistaken, and the consequence is that owners of land and houses may find themselves burdened by all sorts of curious liabilities, which have arisen out of the weakness or goodnature of their predecessors. Thus, the owner of a house adjoining a theatre might find that the lessee of the theatre had a right to put his bills on his walls, for the analogy between publishing programmes and hanging a sign-board is a close one. We, therefore, look forward to some authentic decision by one of the higher branches of our courts upon this question.

Worcester Auxiliary Health Society.—Under the auspices of this society, Dr. Strange, medical officer of health for the city of Worcester, on the 10th inst. delivered a free public lecture,—one of a series to be delivered in the various school-rooms in the city,—entitled "Our Homes: how to make them Healthy and Happy." He alluded to the excessive infantile mortality disclosed by the Registrar General's returns, and showed that in order to be healthy people must have plenty of pure air in their dwellings.

A VISIT TO THE PARKES MUSEUM OF HYGIENE.

BY S. S. C., CANTAB.

On the lamented death, in 1876, of Dr. Parkes (the author of what has been justly termed by Dr. Farr, of the Registrar General's Department, "the best work on hygiene in any language"), it was determined by his numerous professional and personal friends to found a memorial Museum of Hygiene, which, whilst perpetuating the memory of one whose life had been, from first to last, unselfishly devoted to the benefit of his fellow-creatures, should, at the same time, be of such a character as to aid scientific investigation and practical study in the subjects to which Dr. Parkes's work had been especially devoted.

This Museum was formally opened in June last, as the readers of the *Builder* know, by Mr. Cross, the Secretary of State for the Home Department, supported by Cardinal Manning, the Duke of Northumberland, Viscount Cranbrook, Sir Wm. Jenner, and many other eminent and distinguished personages. It has, thanks to the Council of University College, a temporary resting-place in that College (close to the Gower-street Station of the Metropolitan Railway), where it is open, free to the public, on Tuesdays, Thursdays, and Saturdays, from 10 a.m. to 2 p.m. But it is to be hoped that before long the necessary additional funds will be forthcoming to provide a worthy and suitable permanent home for the valuable and growing collection of objects which it contains.

Being under the impression that the nature of the collection of articles in this Museum only requires to be known to be appreciated, and in order to assist in extending its sphere of usefulness, the writer ventures to record some notes of a recent visit thereto, for the benefit of those who may not yet have been made aware of its existence, and who may then, perhaps, take an early opportunity of spending an hour or so in the Museum, and avail themselves of that important practical knowledge which it is well fitted to convey to the intelligent visitor.

The articles exhibited are arranged in six groups, under the headings of:—

1. Engineering and Local Hygiene,
2. Architecture,
3. Furnishing,
4. Clothing,
5. Food, and
6. Preservation and Relief;

and, in addition, there are a library and reading-room, which are perhaps the most important parts of the museum.

It may, perhaps, be convenient to briefly refer to the collection under the different headings, as above.

Class I. *Engineering and Local Hygiene.*—Under this heading are complete sets of contract drawings of the Thames Embankment, and main drainage of the metropolis, all drawings and plans being placed in portfolios, on easels, ranged round the room. Here are, also, bird's-eye and photographic views of different health resorts in this country and elsewhere. Amongst other noticeable articles under this head are one of Norton's patent "Abyssinian" well-driving apparatus, and a patent water-meter.

Class II. *Architecture.*—Under this head we have a collection of drawings and plans of model buildings of all kinds. Those of the Peabody dwellings for the poor, and other model dwellings, of a cottage character, are well worthy of study, as also are those of renovated and adapted town-houses. One of the most popularly-interesting articles in this department is a thoroughly well-made brick, arranged and prepared to show the porosity of the material. This brick has tubes attached to it, and connected with it, at each end, being everywhere else specially coated over with an impermeable material. By placing one of the tubes in the mouth, and the other in a tumbler of water, it will be seen that air can be blown through the brick in its greatest diameter. A knowledge of the porosity and permeability, as regards air and water, of brick, stone, and other materials used in building, is of fundamental importance from a sanitary point of view; and this practical illustration serves to impress the fact on the memory in such a way that it will never be forgotten. Then, under this head, we have specimens of water-closets, earth and ash closets, baths, slop-sinks, ventilating syphon and other intercepting traps for drains, yard-gullies, water-cisterns, &c., of the most approved designs from a sanitary point of view; and, by way of contrast, there are, on the other hand, presented to our notice, specimens of defective and faulty sanitary apparatus and sanitary work, from a study of which more useful practical knowledge can perhaps be gained and remembered than in the case of the more perfect appliances. Then, here are ventilators and cowls of every known kind,—too numerous to specially refer to in detail. The practical uselessness of the much-vaunted rotary cowls, for extraction purposes, has been recently demonstrated by careful experiments conducted at the Kew Observatory; and it will be advisable, therefore, to direct most attention to the several forms of fixed cowls that are here shown, and which, whilst affording good extraction power (obtained from the natural aspirating power of cross breezes of wind) completely prevent down-draughts, and cannot get out of order, as the movable cowls (in common with all other movable machinery) are always liable to do. There are some good specimens here, also, of ventilating gas-pendants, which not only remove their own products of combustion, but much of the foul air of the rooms in which they are placed, in addition. The collection of ventilating and economical fire-grates and stoves, under this head, is well worthy of special attention, as the adoption of some of them, in place of other old-fashioned and wasteful articles of that sort, would soon repay, with interest, the necessary primary outlay. Several of these grates are arranged so as to economise the fuel and utilise much of the heat that ordinarily goes up the chimney, by causing it to warm fresh air which is delivered into the room by a tube communicating with an air-chamber at the back of the fire, to which the external air has access. It would be invidious, and not to the purpose of the writer, to mention names of particular makers, and draw special attention to any grate or stove; suffice it to say, that there are specimens of grates and stoves, on the same and other economical and sanitary principles, of all shapes and sizes (from the poor "country parson's grate" and upwards), and suitable for every particular purpose, the manifest special advantages of each of which are at once apparent on inspection.

Class III. *Furnishing.*—Here are a variety of things that should be of interest to those setting up in housekeeping; but special attention should be devoted to the wall-papers and specimens of dado-decoration of many colours, including flocks, but being exclusively non-arsenical.* It might also be advisable to take a look at the child's patent cot, with sides to open, movable tray for toys, &c., bottom made with elastic wooden laths, which can be instantly removed for cleaning, and replaced. Here also are all sorts of lamps, duplex and triplex, and Argand burners, night-light burners, and one and two-flamed petroleum cooking-stoves. Strange to say, there are no specimens of the best and most useful kinds of the many gas-stoves for cooking and heating purposes, now so advantageously and extensively used; but doubtless this omission will be rectified in due time, and when there is more room. The great saving in labour and cleanliness obtained by the use of gas-stoves and fires, and their manifest advantages as to immediate turning on and off as and when required, as well as the saving of the other valuable products of the coal thereby effected,

* The arsenites being used principally, in colouring, for the bright green and the gloss that they afford, it would indeed be sad if science could not provide for us all that we desire, in these respects, without obliging us to resort to the use of a poisonous ingredient. Besides wall-papers, there are other sources of danger from the use of arsenical pigments, as will be seen on looking at the artificial flowers for ladies' hats and bonnets, exhibited under Class IV. of the Museum Collection, and from the colouring matter of which Professor Corfield obtained a considerable quantity of arsenic. And more especially dangerous are playing-cards, with green-coloured backs, under such circumstances, as they are thumbed a good deal during the process of using them; and thus, during a single evening between the shuffling of the cards and the warmth and moisture of the fingers, a considerable quantity of arsenite of copper may be detached and inhaled, and even introduced through the mouth by those who may be in the habit of moistening the thumb with the lips to facilitate the process of dealing. In the *British Medical Journal*, for November 8th last, will be found, by those interested in the matter, particulars of a case of disease of the fingers, in a lady, due to the use of such cards, as also of two children poisoned by eating sweetmeats in the shape of toy sugar watches, in each of which the quantity of arsenic on the entire face of the watch was estimated at no less than eighteen grains; and also particulars of a case of eruption on the scalp, in a gentleman, clearly due to the use of a hat with a bright maroon lining, in which a considerable quantity of arsenic was found. In one of the daily journals, moreover, Dr. Wallace, analyst to the city of Glasgow, records that he found, on analysis of a pack of playing-cards, with green-coloured backs, that altogether they contained nearly one-fifth of an ounce of arsenic.

and now generally wasted, promise to cause the total abolition, in the future, of wasteful open coal fires, and the general substitution, in their place, of gas-stoves and fires; and doubtless when electricity shall have superseded coal-gas for lighting purposes (as it is destined to do) we shall find the gas companies willing enough to supply us with gas at a cheaper rate for its greater and more extended use for heating and cooking purposes. And when this revolution shall have taken place, more attention will most likely be paid, than is at present the case, to providing a proper and necessary outlet of escape for the injurious products of combustion in the case of all such gas or oil-stoves as are not connected with an open chimney.

Class IV. *Clothing.*—Consists principally, at present, of specimens of army clothing and accoutrements, which are of little general interest; but it is evident that there is plenty of room for the development of the Museum collection in this respect,—a fact of which, no doubt, the committee are well aware. Here are wanted specimens of well-ventilated hats and waterproof clothing; of incombustible clothing, &c.; as also specimens of boots and shoes constructed on proper principles, and corsets, &c., which shall afford the necessary support for the female figure, without causing undue constriction of internal organs, or interfering with that natural comeliness which only ought to be considered beautiful. There is plenty of scope, in this department, for ingenious persons to submit to the consideration of the authorities of the Museum specimens illustrating improvements and advance in such matters.

Class V. *Food.*—Here we have samples of food for invalids of all kinds, as also preserved meats and fruits, &c.; and under this head are ranged specimens of the most approved patterns of filters for domestic use. Particular attention, however, should be paid to the Food Collection presented by Mr. Enos. Twining, of Twickenham (who has taken such an important part in the general organisation of the Museum, and as a liberal contributor thereto out of his own private collection), which will be found in twelve glazed show-cases, or stands, in which the specimens are methodically arranged. The first two stands are devoted to the chemistry of food, and illustrate the chief proximate organic and inorganic constituents of the different foods. The composition of the different foods is illustrated in a very simple and palpable manner, viz., by placing, in a row, flat glass bottles opposite a given amount of each specimen of food substance, the amount of albumen, gluten, starch, fat, water, and salts, &c., existing in each, and in the exact proportion in which they are present; so that, at a glance, one sees the essential difference as to constituents, and the amount of such difference, in the various articles of diet, and the lesson thus learned will not be readily forgotten. Thus no one who has examined the specimens in these cases can fail to observe and remember the large bottle of starch in the rice series, as compared with the small bottle of that constituent in the oats or barley series; as also the apparent much larger proportionate amount of nitrogenous constituents, fat and salts in the latter, as compared with the very small proportionate amount of these in rice, and so on with the other different food substances and the other constituents.

Class VI. *Preservation and Relief.*—Here is a complicated series of all sorts of articles, from disinfecting-stoves to bronchitis-kettles, and including a portable Turkish bath, patent bedsteads, invalid couch, artificial teeth, orthopædic apparatus, water and air beds, eye-preservers, respirators, &c.

Library.—Besides containing a copious supply of books on all matters pertaining to the subject of hygiene (presented principally by publishers and authors) for reference on the spot, it contains also a complete series of the Blue-books of the Local Government Board and of the Registrar-General's department, &c.,—not readily got at elsewhere except in the British Museum. There are also, on the library-table, most of the sanitary periodicals now published; and it should not be forgotten to mention that in the library there is a powerful Ross's microscope, with a supply of microscopical preparation of food substances, &c., at the disposal of visitors. Last, but not least, attention should be paid to the portrait of the late Dr. Parkes himself, painted in oil-colour by a student of the Slade School of Fine Art, and presented by Professor Legros.

In conclusion, though this collection, temporarily housed in University College, is but the nucleus or skeleton of a still larger and more complete collection, which will, one of these days, it is hoped, find a more suitable and permanent home in some convenient locality in the metropolis; yet it may be safely affirmed that it is the largest, if not the only public permanent collection of the kind, in this kingdom or elsewhere, and when completed, should form a model to be copied or adopted, on a larger or smaller scale, according to circumstances, in every town in the kingdom, for the diffusion of a practical knowledge of sanitary science for the benefit of the masses. Such an institution should be of special interest to all householders, landlords, medical officers of health, and medical men generally, architects and surveyors, members of local boards of health, and to those entering a new house or contemplating building, and is well worthy the more extensive support in money and contributions, which it needs to complete the scheme and objects in view, and we may, therefore, in finishing, just add that printed forms, and all information required by intending contributors, can be obtained on application to the curator of the museum, at No. 6, Dudley-place, W.

GREEK ART.

BURIAL AT THE BRITISH MUSEUM.

On Saturday evening last, at the College for Men and Women, Queen-square, Bloomsbury, Mr. C. T. Newton, C.B., of the British Museum, resumed his lectures on "Greek Art," taking for his subject, "Polykletos, and other Sculptors, the contemporaries of Phidias." The other lectures have already been published in the *Builder*.

Mr. Newton commenced by saying that the last time he addressed them it was on the subject of the Parthenon, of which he had treated in more than one lecture. In regard to the Parthenon, he was dealing with comparative certainties. There was hardly anything in all archæology more certain than that the Parthenon was executed under the immediate direction of Phidias, and that the date was about 430 B.C., in the time of Pericles. In this present lecture he had undertaken to tell them what he knew about the sculptors contemporary with Phidias, whether of the Athenian or of other schools. What he knew, and what he thought anybody knew, about these sculptors was exceedingly little, and based, not on certainties, but upon probabilities more or less plausible. At the outset he thought he would say this; and he need not observe that he could not construct evidence where none existed, but he would endeavour to show them what the evidence was, and what had been made of it by three generations of archæologists in this particular case of the sculptors who were contemporaries with Phidias. In order to make this clear to them, he must revert to what he told them in the inaugural lecture, of which the present was the continuation. He there told them how the museums of Europe had been formed, and how archæology had been gradually developed. He told them that in the fifteenth century, simultaneously with the revival of learning and the publication of classical texts, there took place at Rome great discoveries of ancient statues, which were found constantly in digging the foundations of palaces of princes and cardinals. These statues, he then pointed out, were collected in the museums of Rome, and in the museums of the great capitals of Europe, and they also got among private collections. Now, these statues were very seldom found perfect, being generally headless, armless, or without legs, and, where two or three of the same kind were found, the leg missing in one was supplied from a leg which had survived from the other, and so on. But they first had to go through the "hospital," and in these Roman "hospitals," he was sorry to say, the care of the sick and wounded in the fifteenth, sixteenth, and seventeenth centuries was very imperfectly understood. Instead of leaving things alone, as the Greek and Roman artists made them, they were patched and botched, repaired and "beautified," and the surface of the marble polished till nothing was left of the originals, and, in fact, they came out of the "hospitals" with a worse constitution than when they went in. It had consequently come to pass that statues had been misunderstood and restored wrongly, and that toes and heads had wandered all over Europe into private collections, losing their original connexion one with another. The subjects of these sculptures were first identified by reference to ancient mythology, as it was then imperfectly known in Rome. There was Pliny's vague and inaccurate but most precious catalogue of the works, and there were the criticisms of Pausanias upon works of art. Some few of the statues, such as the Laocoön, and Niobe and her Children, had been identified with works of which the date and author were given by Pliny. The rest were imperfectly understood and constantly restored with a misconception of the original motive. The best were retained in the Roman galleries; the remainder found their way into foreign galleries, public or private, and it was only since the beginning of the present century that a more scientific archæology had given more correct dates and interpretations to these sculptures by a diligent comparison of what was scattered all over Europe.

A general principle to be deduced from the study of ancient statues in museums with a view to identification was this: if they found replicas or repetitions of the same statue, or slight varieties from it, there was a strong *à priori* presumption that the statue was one of the celebrated and favourite statues in antiquity. Assuming this, search had been made in Pliny and other authors, who gave lists of ancient sculptures, and some of the subjects named by them had been identified in copies still existing. They found in the museums three distinct types of Amazons, of which two were represented in the drawings exhibited,—distinct so as not to suggest affinity between them.

It had been pointed out by Otto Joahn, a German archæologist (whose name deserved to be better known in this country) in a dissertation in a Leipsic periodical, that there were in Europe six examples of one of these types, and five of each of the other two. This was an unusual circumstance,—the constant repetition of the same type in so many different examples,—and at once the archæologist suggested the idea that they were replicas of some celebrated statue, and probably one which was a favourite at Rome. The style to the eye of the archæologist of all these three types of Amazons suggested one particular period, and one only, viz., that of Phidias. Again, the style of all three types presented certain characteristics which they associated with art in the age of Pericles, and further, the treatment was more in accordance with bronze than with marble. Having established this by the evidence of the museums, they must turn to the evidence of books to see whether they could get anything there, and looking to Pliny they found a curious story that statues of Amazons in bronze were dedicated to the Temple of Diana at Ephesus by four celebrated artists, Phidias, Polykletos, Cresilas, and Phradmon. These artists were severally invited to choose which of the works thus dedicated they ranked near to their own. We further learnt from Pliny that one of them, Cresilas, made a statue of a wounded Amazon, and of these three types two did represent wounded Amazons. In regard to the story told by Pliny, the method adopted would make artists very fair judges of each other's works. It was a curious fact that the late Prof. Cockerell, in giving evidence before a Fine Art Committee of the House of Commons, quoted this anecdote of Pliny, and recommended this actual mode of choosing, which was tried at the late Paris Exhibition. Many German archæologists thought it was an invention of a later age, but we had not only the positive competition, in the case of dramatic representations at Athens in the time of Pericles, and of poetic contests, but the distinct testimony of the practice of competition in works of art at the very time with which he (Mr. Newton) was now dealing, viz., the age of Pericles, and that was of a statue which had recently been found at Olympia. We learnt from Lucian that Phidias made an Amazon leaning on a spear. Such were the grounds which archæologists generally considered sufficient to justify them in connecting the originals of these three types with the story told by Pliny; but it would not be safe to appropriate any one type to a particular artist. He regretted that the British Museum had not one of these Amazons, but it happened that in the Townley Collection there was a head which undoubtedly belonged to one. He could not say, however, without a great deal of study, to which type it belonged. Whenever they saw

one of these Amazons at any of the European art galleries, they should ask themselves whether it was worthy of the age of Phidias. Let them carefully examine the dress. In the illustration exhibited, the action of the upraised hand of the Amazon had, no doubt, something to do with the severe wound she had received, but the question was a surgical one. In regard to "The Dying Gladiator," Sir Charles Bell pointed out that the action of the man leaning forward upon his arms was the action of a man whose lungs were being flooded with blood, and trying to breathe; so there might be some connexion of the upraised hand of the wounded Amazon in a similar manner.

As regarded the general type of these Amazons, he regretted to say that the drawings from the original statues from which they were taken were very much clumsier than he could wish. In placing these statues as of the time of Phidias, there were examples of how the artist tried to promote the female form, as it were, to a higher degree, and they would find that that was characteristic of the art of Phidias, who had tried to make his works as grand, as heroic, and as unsusceptible of the frailties of the sex as he could consistently with nature. This was of very great interest, because in this great age of creative art of the time of Phidias and Polykletos this type of Amazons was first conceived and brought to its maturity. In that maturity it remained certainly for another century. The lecturer then proceeded to point out two drawings from the frieze of the Mausoleum, exhibiting Amazons in violent action and with the same type; the difference being that of costume, and the fact that they had never been subjected to any restoration. In these figures, he said, there was extraordinary heroic beauty, and in the representation before them, depicting a deep, and, perhaps, deadly, wound, there was no more expression of pain in the face than was necessary, considering the wound, and they were truly worthy of the age of Phidias. They marked a great ethical period of art, when there was the feeling that heroism was everything. Then art, becoming emotional, lost its dignity. Mr. Newton then referred to another type of wounded Amazon in the Vienna Museum, of singular beauty, which, he said, appeared to be far earlier than the others. There was no reason to suppose it was a copy of any work. Turning from Amazons in action to Amazons in repose, there was one representation in the British Museum, on a Roman sarcophagus, of a row of Amazons resting after a battle, their shields by their side. He regretted he could not refer to the original of this, because it had lain in the basement of the British Museum for more than twenty-five years. It formed part of the famous Townley collection, for which the British nation paid 20,000*l.* at the beginning of this century, and it was situated in a place so dark that it could only be seen at this season of the year by the aid of a lantern. Many other interesting sculptures of the Townley collection were similarly placed, and were not shown to the public. There they would remain until the House of Commons, the authorities at the British Museum, or whoever was responsible, — he wished he could tell them,—assigned a proper place for them. We are supposed to be a very practical people, but it appeared to him, looking at things from his own point of view, that there was nothing more unpractical than to buy great collections with the money raised from public taxes, and then to hide them away in holes and corners for an unlimited time, after having once exhibited them and published a list of the works. He would be sorry to have any money dependent upon these sculptures being exhibited this day three, four, or even five years hence, because it appeared that the public were perfectly content to leave their national collections in this scandalous state of neglect. The only people who were not content were foreigners, who asked to see these sculptures, and insisted upon their right, and for whom the Museum lanterns only were put into requisition. In conclusion, Mr. Newton said that he had only two more lectures to deliver, which would exhaust all he knew at present in regard to the Athenian school contemporary with Phidias. He would treat further of Polykletos, who would re-appear as a maker of statues at Athens, and of Myron and other contemporaries of Phidias.

Mr. Reginald Stuart Poole, keeper of the coins and medals at the British Museum, in proposing a vote of thanks, said that in regard to what Mr. Newton had stated as to the placing of unique specimens of Greek sculpture in the cellars of the British Museum, the question was one of public importance. He urged the necessity of something being done "to civilise the savage tribes" who were connected with that building, in order that the public might have these specimens of sculpture properly exhibited in the future.

OUR FOOD SUPPLIES.

"Civilised men," says Meredith, "cannot live without cooks;" and whether, in the words of Horace, they seek "feasts Sicilian," or "the simplest fare," these universal providers draw heavily upon certain commodities. In Great Britain our own food supplies have long been insufficient; and though we have raised the acreage of land under crops from 22,052,510 acres in the United Kingdom in 1867 to 24,065,394 in 1878, the deficiency in our home produce must have largely increased, as the population in those years rose from thirty to thirty-four millions. Without considering whether the average crop remains the same, it is tolerably certain that we have had to enlarge our importations of the chief articles of food. Hence, we have nearly doubled our imports of wheat and grain from Russia in fifteen years, and whilst generally the larger consumption of other European countries has not allowed them to enlarge the quantities they send us materially, the United States send us four times as much as she did, and British North America twice as much. Where we imported 23,000,000 cwts. of wheat, wheat meal, flour, and grain yearly, we now import 49,000,000 cwts. In the fifteen years we have trebled our importation of cocoa, whilst coffee has not been materially increased; we have added 50 per cent. to the quantities of currants and raisins; almost doubled those of spirits and of tea, and increased by one-half the wine we bring in. We used to import one million cwts. of bacon and hams, but the rich stores of what Chicago calls "corn incarnate" have chiefly swelled that amount more than fourfold. We have doubled the imports of cheese, of eggs, of oranges; where we bought abroad 1,474 cwts. of preserved meat, we now buy 439,900 cwts.; and we buy now ten times the amount of potatoes we did. In short, from the great prairies, the grazing farms of the colonies, the vast cornfields of the Western States, the tea plantations of India and China, the vineyards of France and Spain, the fruit-gardens of the Mediterranean, the dairies of Denmark and Sweden, the great wheat plains of Russia, and from all the food, fruit, and drink producing districts, we have been compelled to draw enlarged supplies to aid our own productions in feeding our growing population. And though we continue, by reclamation and enclosure, to add to the land under cultivation, and though by emigration we check the natural increase of population, yet our food imports must continue to grow.

But Britain is more than a food-eating country; she is also a food-storing and food-selling one, and hence a part of the imports of food are not for her own consumption, but are for that of the inhabitants of other countries. Allowing for this, the fact remains that Great Britain is of recent years not only drawing more of her food supplies from abroad, but that each of her people, on the average, is consuming more imported food. Taking the quantities of food imported, and dividing them amongst the ascertained population (after deducting the re-exports), there is a continued, but irregular, increase over some years. To take a few instances from the official figures:—In 1864 we retained for home consumption for every individual in the kingdom 3·77 lb. of bacon and hams; but last year we retained for each 12·60 lb.; similarly, the butter retained rose from 3·94 lb. to 5·82 lb.; the cheese, from 3·13 lb. to 6·37 lb.; the potatoes from 2·81 lb. to 28·96 lb.; the raw sugar, from 33·80 lb. to 48·56 lb.; the corn, from 104·26 lb. to 188·29 lb.; and the eggs, from 11·34 to 23·18. Of imported spirits we used to consume 0·21 gallon, we now use 0·31 gallon; and of wine the quantity rose from 0·39 gallon to 0·48 gallon; whilst other articles of comparative luxury in food similarly increased. In a sentence, our wants have grown more rapidly than our own capabilities of supplying them have, and we have necessarily to increase our purchases elsewhere.

Although it does not come within the compass of this paper to deal with the question of our manufactures, it may be broadly stated that we have now increased competition in selling these, and therefore it is possible that there will be less transference of capital from agriculture to manufactures. And this is needful, just as it is also needful that our production of food at home should be enlarged. If our manufacturing supremacy is being assailed,—and it is evident that whilst other nations are developing their internal resources we cannot hope to manufacture for them,—if that supremacy is being assailed, and impediments are placed in the way of the entry of our goods into other nations, our policy is to lessen our dependence upon these nations by increasing our food productions. If our land were fully occupied this need be less urged, but it is notorious that there are hundreds of thousands of acres untilled and untilised; and that a not inconsiderable portion of the land under cultivation is far from returning that amount of the "kindly fruits of the earth" that it would do if the proper amount of capital and labour were "put into the land." More than half a century ago Cobbett pointed out in nervous sentences how the land might be made to yield more; and much nearer our own time Miss Martineau has told how her "miniature farming,"—by "fork and spade husbandry"—paid her, and "created a subsistence for a labourer and his wife." Not only in this miniature method, but as Mr. Mechi has shown on a larger scale, may farming with modern appliances be made profitable. We need not discuss the land question proper, nor the need of readier and cheaper methods of transfer; but it may be added that even where the condition of the tenant as such is satisfactory, the land is often not made to yield what it should, and incidental aids to profitable farming are not brought into use. We have not the labour-saving cheese-factories that America knows; our farmers do not unite to purchase or hire the best instruments, where these are costly; our farming villages are not homes of the myriads of poultry that they are in Prussia and Poland; and the labourers' children here idle their time when their fellows in Norway and Sweden are using theirs to add to the food supplies from the wild fruits that here "waste their sweetness on the desert air." Our farmers need to endeavour to meet the increased competition they have to meet in the method some of our own manufacturers have done,—cheapening the cost of production by enlarging the yield from a given area. If this were done, if farmers would unite to form farming societies, as mechanics form building societies, and, if the waste land were tilled, we should have employment for many of the unemployed, and our yield of food being increased, our dependence upon other nations for our food-supplies would be materially lessened.

TOWN GARDENING.

"You must know, sir," says Addison, in a pleasant essay in the *Spectator*, "that I look upon the pleasure which we take in a garden as one of the most innocent delights in human life. It is naturally apt to fill the mind with calmness and tranquillity, and to lay all its turbulent passions at rest." But the pleasure of a garden is popularly supposed only to be enjoyed by those who are fortunate enough to live in the country; yet, if calmness and tranquillity are, as Addison says, some of the characteristics of the gardener, the cultivation of plants should engage most of all those whose lot it is to live in large towns; and it is only in towns, after all, that flowers are prized at their real worth. A posy of quiet ox-eyed daisies, which the children from the village school will hardly care to pick, becomes a real pleasure in the town, and a bunch of primroses in the early spring is worth a dozen camellias.

Thus it seems somewhat curious that those who live in London and the large provincial towns do not give more attention to the cultivation of flowers than they do at present. There can be no question, indeed, that in this respect London is far ahead of Liverpool and the great towns of the North. But even in London there are scores of gardens, and dozens of windows and balconies, where flowers might be grown and afford "one of the most innocent delights in human life," which are still quite neglected.

But town-gardening has for all classes three clear divisions. There is first the cultivation of plants inside the house; then there is window gardening simply outside the house; and finally, there is gardening on a larger scale,—the grow-

ing of plants in a garden. The two first kinds are within the reach of almost the poorest householder or lodger in a town, of any artisan or clerk who can muster a few pence now and then for the purchase of plants or seeds; but the last is only attainable by those who have some of those spare pieces of desolate ground, euphemistically called gardens, but which with care may be made gay and charming, not only in the middle of the summer, but even in the spring and autumn. And though the town horticulturist has difficulties to contend with from which his country brother is wholly free, yet these difficulties bring with them very counterbalancing advantages. When a plant has to be cherished and tended, when its growth is watched from day to day in a manner which is quite impossible in a good-sized country garden, it becomes a thing of real worth, and as it dies down when the autumn approaches its loss causes quite a void among the gardener's friends. When a bright green shoot of chrysanthemum is broken by a ruthless nocturnal battle of cats, or when one of these enemies of the town-gardener roots up an iris just about to flower, it is quite a misfortune for him. But gardening in town is an amusement not only innocent, but at once healthy and absorbing. Any one who has tended a town-garden during the present year must have undergone a vast amount of exercise of a small kind in the extirpation of the hydra-like growth of weeds which have characterised the past summer. And this recalls another pleasure which the town-garden gives,—the owner of it should be his own gardener, except it may be when some more than usually extensive operation has to be performed, as the digging over and manuring of the beds. For, first of all, it makes him the father of the garden; each plant is nourished with his individual care; and next, it is hardly possible to get a decent jobbing gardener. They are either idiotically stupid or crassly careless; they have no care for the most precious plants, and they will crop the ivied-wall, standing without compunction on your budding lilies of the valley or tiny auriculas. Really it would be a positive boon if a few honest, careful, jobbing gardeners could be procured in London at a reasonable cost. Why should not women undertake this work, which is never very heavy? Moreover, another reason why town-gardening should be encouraged is because both boxes and gardens add so much to the picturesqueness of a street or square; they give a brightness to the otherwise gloomy fronts that characterise English towns which nothing else can give, they please the eye and are attractions for passers by as well as to the possessors themselves.

And while we are on the subject of window-boxes, we should like to protest against the prevalent fashion of having them encased in gaudy tiles covered oftentimes with all sorts of patterns, usually more or less ugly. The flowers are meant to adorn the boxes,—not as the box-makers seem to think, the boxes the flowers. Plain cork or bark are really the most suitable coverings for a box, though dark brown tiles set off well the hanging sprays of the red nasturtium or the long and drooping feelers of the bright and ever-welcome Creeping Jenny.

It was not our intention here to go minutely into the details of town-gardening, but only to state some of the most obvious reasons why dwellers in houses should give some of their spare time to this pleasant pursuit. But before quitting the subject, it may be well to observe that care is the chief element necessary to obtain a satisfactory town-garden,—a little care in the selection of the plants; a great deal of care in the tending and cultivation of them. Neither is it any use to try to raise delicate or curious plants, the most old-fashioned and the most home-like will ultimately give most pleasure. Ferns should be made the *pièces de résistance* of the town garden and boxes; their graceful fronds will, with comparatively little attention, flourish year by year. Put them into any spare corner, under bushes, among stones, and throughout the summer they will form a delightful back-ground for the brighter flowers. Auriculas, again, as pretty a little flower for spring and early summer as can be wished for, do well in towns; and as for the musk of one's childhood, it will grow like a weed in London. Indeed, it gives a great deal of trouble when it has once made itself a home in a bed. Then very bright borders may be made of the pyrethrum; in many cases it will be as satisfactory a second as a first year, but on the whole it is better to plant it fresh every year. The purple and the white iris are each indispensable, and require little attention. Then it is possible to have excellent specimens of carnations, and both stocks and Canterbury bells add much to the prettiness of the town-garden. In window-boxes do not hesitate to clean with a syringe the fronds of ferns and the leaves of plants: it will invigorate them not a little; but we have gone already more into details than we intended, and can only reiterate that town-gardening is no small pleasure to the gardener and to those who see his flowers.

GLEANINGS FROM THE GRAVESTONES OF THE ISLE OF MAN.

The churches of the Isle of Man are singularly like one another, but it is the harmony of monotony, and not of beauty or stateliness, which characterises them, one and all. For the most part they are plain stone buildings generally whitewashed, without a tower or steeple, with only a plain and small turret or projection above the western wall for a small and strikingly unmusical bell. As a more energetic ecclesiastical rule begins to produce its effect, so will this plain appearance of the Manx churches undoubtedly disappear. Already the stone has been laid of a new church in Peel which will have all the appearance of the modern English church, and in the town of Douglas the quaint old church which still stands in the country parishes has for some time disappeared; and with the departure of these simple buildings will depart another characteristic feature in the Isle of Man,—a feature which told of an isolation from the mainland and a certain insularity of ideas in things ecclesiastical as well as lay. Taken by itself, one of these buildings is wholly without beauty, but, taken with the others of the island, and with its surroundings, it helps to give a certain character to the place, and, say what we will, anything characteristic has a certain charm. For these plain churches harmonise well with the unwooded and somewhat bare landscape; the desolate summits of Barule and Snaefell; the changing ocean, with its breadth and absence of detail, now sparkling in blue white-crested waves, now murmuring angrily under the lowering clouds. The graveyards, too, are equally in keeping with the buildings which they surround. For the most part they are filled with sombre tombs of black and unpolished marble, rising in perpendicular slabs, the produce of Poolvash or some other quarry. These, too, speak not only of an unadorned religious service, but likewise of a certain stolid perseverance and resignation among "the forefathers of the hamlet" and of their descendants.

And it might be supposed that on these sad-looking tombstones very characteristic inscriptions might be found. Feltham, who made a tour of the Island of Man in 1798, took down every inscription of every churchyard, and these were, for the first time, published in the fourteenth volume of the Manx Society's publications, under the title of "Memorials of God's Acre, being Monumental Inscriptions in the Isle of Man, taken in the Summer of 1797, by John Feltham and Edward Wright."

But, on the whole, there is less of quaintness among these inscriptions than would have been supposed, though they may well occupy a passing hour, and, as such, an example or two may interest the readers of this paper.

The first we will notice, one in Kirk Michael, is that of a man who has a universal celebrity in the religious history of England, namely Bishop Wilson, who died in 1755, and was known for his piety throughout Great Britain. The epitaph is what may be termed of the suggestive kind, and might be worth the notice of those who would rather have the qualities of the deceased traced with a pleasant vagueness. After reciting the dates and several details, it proceeds:—"This monument was erected by his son, Thomas Wilson, D.D., a native of the parish, who, in obedience to the express commands of his worthy father, declines giving him the character he so justly deserved. Let this island speak the rest."

In such a spot as the Isle of Man, where mariners and fishermen have a home, and where Sunday by Sunday a prayer is offered for those "toiling on the sea," and that the harvest of the sea may be bountiful, we should be certain to meet with some inscription dictated by the surrounding scenes and by the seafaring habits of the population. Perhaps the most characteristic of these which we have met with is one of a certain captain, William Harrison, who died in 1760. It combines what may be termed biography with a seamanlike assurance of ultimate salvation, and runs thus:—

> "The boisterous blasts of Neptune's waves
> Have tost me to and fro;
> In spite of both, by God's decrees,
> I harbour here below.
> Altho' I here at anchor lie,
> With many of our fleet,
> I must one day set sail again,
> Our Savour Christ to meet."

Passing onward to the north of the island to the parish of Marown, we find a gravestone which takes us back to quite a by-gone state of manners, and to quite a different estimation of the clerical character, a time in which society as depicted by the lively pen of Fielding was much the same as when this great novelist wrote his novels a few years earlier. For we find an inscription of the year 1779, of the "Rev. John Christian, of Balnakilley, vicar of this parish twenty-six years, buried September 29th."

> "In wit facetious, humorous to his end,
> A good companion and a steady friend."

Such was one of the Manx clergymen of the eighteenth century, and a pleasant fellow he must have been if his epitaph describes him aright. We will take only two more: one noticeable for the play on a Manx surname still common in the island, and another descriptive also, like the second already mentioned, of the seafaring habits of the population.

The epitaph facetious is in Kirk Santon, on the eastern coast of the island, and is in honour of one Daniel Tear:—

> "Here, friend, is little Daniel's tomb,
> To Joseph's years he did arrive;
> Sloth killing thousands in their bloom,
> While labour kept poor Dan alive.
> How strange, yet true, full seventy years
> Was his wife happy—in her Tears."

When we add that there is every reason to believe that this man was aged 110 when he died, and had lived part of his life as a vagrant, this epitath is a monument to the healthiness of the Isle of Man and of a wandering life.

We now reach the last of our selection, which is at once simple and suggestive. The epitaph is on the tomb of one James Cotter, who perished at sea on October the 20th, 1789, and was buried in the following month:—

> "God sent a wave to set him free
> From sorrow, sin, and misery."

This is in the graveyard of Kirk Christ at Rushen, a church within sight of the sea, and close to some of the finest coast scenery of this boldly-outlined island. On many Sundays in the year it is thronged by the hardy fishermen of Port St. Mary and from the surrounding cottages, unless they are away for their winter cod-fishing on the Irish coast, or fishing for mackerel in the spring off Kinsale; and no winter passes without some one of their number being lost when engaged in their dangerous toil. So that this inscription would fitly be found on the tomb of many who pass it by.

St. Mark's, Venice.—A meeting was held in the Sheldonian Theatre, Oxford, on the 15th inst., for the purpose of considering the expediency of communicating with the Italian Minister of Public Works on the subject of the proposed restoration of the façade of St. Mark's, Venice. The following resolutions were unanimously passed:—Moved by Mr. Street, R.A., and seconded by Mr. Burne-Jones, "That this meeting, believing that the façade of St. Mark's Church is structurally in a sound condition, and that its surface is at present both beautiful and venerable, thinks that any alteration in its appearance would be a misfortune to art." Moved by Dr. Acland and seconded by Mr. Morris, "That this meeting wishes respectfully to represent to the Italian Government the keen and heartfelt interest that all civilised nations take in the art and history of Venice, and pleads earnestly with them for at least time to consider the question in all its bearings, and to obtain, if possible, the co-operation of other countries." Moved by Professor Richmond and seconded by Dr. Acland, "That these resolutions be respectfully tendered to the Italian Government." The chairman said that a memorial would be drawn up and laid before the members of the University generally for their signature.

THE FLOODINGS AT BRIXTON AND STOCKWELL.

NEW SEWER WORKS DECIDED UPON.

THE Lambeth Vestry have at length decided upon the construction of new sewer works in the Brixton-road, at an estimated cost of 4,000*l.*, with the view of preventing a repetition of the flooding which has done so much damage in the neighbourhood during the last few years. At the last meeting of the vestry the serious statement was made that, according to information collected by actual examination and inquiry, out of 1,400 houses in the neighbourhood of the White Horse, Brixton, there were 600 liable to flooding, and that it was absolutely necessary that no time should be lost in carrying out the proposed sewerage works, which it was expected would prevent the continuance of the mischief which now occurred. The General Purposes Committee recommended the Vestry, on the advice of the surveyor, to use the old line of the Effra sewer as a storm overflow, and so relieve the high-level sewer at the White Horse. That would necessitate the construction of a sewer in Brixton-road, for the drainage of the locality, from Kennington Church to the White Horse, a distance of 4,000 ft. A portion of the proposed sewer would be 3 ft. 9 in. by 2 ft. 6 in., and another portion 3 ft. by 2 ft., the cost being 4,000*l.* In the course of a discussion which took place on the subject, Mr. R. Taylor (the representative of the Vestry at the Metropolitan Board of Works) said it would be of no use to think of going to the Metropolitan Board for assistance, as it was a local sewer. He added that the Metropolitan Board would have to lay out some 700,000*l.* for such public works, and out of that 70,000*l.* would have to be expended at once. It was agreed to proceed at once with the construction of the new sewer as recommended.

BUILDING ON THE SITE OF THE QUEEN'S BENCH PRISON.

WE are given to understand that building operations will now very shortly be commenced on the site of the old Queen's Bench prison, and that a few weeks will suffice to see workmen engaged in demolishing the old building, preparatory to new structures being erected on the site. It appears that Mr. Hobbs, of Croydon, who is largely engaged in building, and also an extensive contractor in connexion with public works, is the gentleman who has purchased the building from the Government, and the purchase-money is stated to be upwards of 25,000*l.* It is further stated that the intention is not to erect dwellings exclusively, but that portions of the site will be laid out and set apart for the erection of manufactories and warehouses. The St. George-the-Martyr Vestry was exceedingly anxious to purchase the site for the erection of baths and washhouses, and other buildings of a public character in connexion with the parish, but on their wishing to enter into negotiations with the Government for this purpose, they felt much disappointment on being informed that the building and site had already been disposed of.

THE NEW GRAND DUCAL COURT THEATRE AT DARMSTADT.

ON the 19th of October the new Court Theatre of the Grand Duke of Hesse was opened at Darmstadt with a performance of Weber's "Jubilee Overture" and Wagner's "Lohengrin." It is eight years since the old theatre fell a prey to the flames, having been burnt down on the 24th of October, 1871. When that calamity happened, it was resolved at once to re-erect another edifice, and among the plans sent in was one by the late celebrated architect of the Dresden Court Theatre, Dr. Semper. This, however, was found to have been drawn up on a scale of magnificence too vast and costly for the prim little capital of the Hessian duchy; and another plan, submitted by Herr Horst, who was afterwards assisted by Herr Müller, was ultimately adopted. The fact that the Hessian Government have expended no less a sum than 1,000,000 gulden, or about 85,000*l.*, on the restoration of its theatre at Darmstadt, prepares us to find that the work has been very completely done; and this is, indeed, the case. It was not before the year 1876 that the work of erection was taken in hand. The new house is built on the foundations of the old one, which itself was a very convenient and elegant temple of the Muses erected by the architect Möller in the Antique style in the year 1819. It is almost only at the back part, behind the stage, that the new house has been extended beyond the dimensions of the old one, the only other addition being the covered entrances for carriages on each side of the building. It differs from the former house in another way, by the possession of considerably greater internal conveniences, satisfying everything that can be required for the production of the most elaborate musical and dramatic works on the stage. Among other things the reconstructed building enables the decorations to be drawn up whole and unbroken, which was not the case in the old house. On the exterior of the building, the portico, with its six fluted Corinthian columns, which came out of the conflagration of 1871 intact, have been adopted in the present structure, and, as in the former house, forms one of its chief ornaments. The auditorium, though of equal size with the old one, has been constructed to accommodate a smaller number of spectators, but provides better for their comfort. The internal ornamentation, which is in the modern Renaissance style, the parapets in white with gold, the groundwork of imitated gold brocade, has been executed by Volk, of Mayence, who has also supplied a fine drop-scene. The ceiling was painted by Herr Schabershut, of Dresden. The Court-box and retiring-rooms have been fitted up in a style of solid elegance, qualities which likewise distinguish the furniture of the auditorium generally, while all modern improvements have been adopted in the heating and ventilating apparatus. The stage has been constructed and fitted up according to the plans and under the superintendence of the noted German stage architect, Karl Brandt. All the novelties and improvements which he had originally introduced into the stage of Wagner's celebrated theatre at Bayreuth have been adopted at Darmstadt, including a deeper position for the orchestra. The lighted breadth of the proscenium is 11½ metres, and can be enlarged or narrowed at pleasure. The breadth of the stage from wall to wall is 23 mètres, the depth 20 mètres. The free height from the podium to the first covering is 24 mètres, and the depth below down to the base timbers, 7 mètres. Behind the main stage is a back stage of corresponding dimensions, occupied by a large movable podium, which, when occupied by decorations and actors, can be easily pushed forward by machinery over the front stage into any position desired. The machinery underneath the stage is in three stories. The machinery above has on both sides five galleries, mutually connected by eighteen bridges or gangways. The stage is divided in seven sections, arranged in perspective, each section having an incline of 10½ metres, three free passages, and trap-door. On the evening of the opening, the new house was crowded to the ceiling, and the performance showed the acoustical qualities to be excellent.

THE BRIDGING OF THE NEVA.

WHEN Peter the Great selected as the site for his new capital a marsh dotted with a few islands, he did not foresee the difficulties that would arise should the town grow in size and spread from island to island. Bridges of boats are at best but a clumsy means of communication, while at St. Petersburg they were at times altogether ineffective. When the ice blocks float down the Neva in the autumn, and the snow melts in the summer, these bridges are carried away if not removed in time. All communication between the city and the suburban districts is therefore rendered altogether impossible for the time being. Thus the island or quarter of Wassili-Ostrow, where, by order of the Czar, many important edifices have been raised, used to be as completely separated from the other portions of the capital for a few weeks each year as if it had been a thousand miles away. The first permanent bridge which put an end to this state of affairs was constructed in the reign of the Emperor Nicholas, and contributed greatly to the increasing prosperity of what a Londoner might call, by comparison, the Surrey side. Nevertheless, this solitary bridge could not in itself suffice; for there was another quarter, the Vibourg district, of equal importance, which remained unconnected with the centre. But if the necessity was urgent, the difficulties were great. There were natural obstacles which no ordinary effort could surmount. The services of the celebrated engineer, M. de Struve, were sought, and during four long years, engineers, architects, and the boldest and strongest workmen have attempted to cope with the formidable Neva. Finally these efforts have terminated successfully, and within the last few days the Emperor Alexander has inaugurated the new permanent and solid bridge of Liteinaia. This was considered a great event, and will be productive of many material advantages, in spite of the enormous cost, which is estimated at five million roubles, to be paid half by the town and half by the State.

BUILDING AND COMMERCIAL DECADENCE.

MR. B. H. THWAITE, of Bolton, read a paper before the Manchester Architectural Association, entitled "Commercial Decadence, and its Relation to Architecture."

After remarking that commercial progress is synonymous with that of art, he traced the influence of commerce on the art of the Egyptians, Phœnicians, Assyrians, Greeks, Etruscans, Romans, Venetians, and on the architecture of the Victorian era, pointing out that the luxury evinced in their architecture at certain epochs in their history was a sure evidence of commercial decadence. He concluded:—

One description of the rampant speculation common to the era of prosperity was the almost criminal form of construction known as "Jerry" or speculative building. We have laws for preventing adulteration of food. Why not have laws to prevent the erection of a class of buildings for habitation in every respect a sham?—often, from the builder's ignorance of hygiene, more injurious to health than some forms of adulteration. Besides, the buildings are a standing and permanent evil. A great many of these adventurous builders have succumbed to the prevalent oppression. We have no pity for them; they have committed a great injury against their fellow-men. Unfortunately, these sham buildings have in many instances depreciated the value of those truthful in construction, and healthy. The only way to prevent the construction of these buildings is by the exposure of their false character.

One reason of the prosperity of the Americans is their wonderful ingenuity; they have every encouragement to invent. Here, on the contrary, inventors have no encouragement. Let architects encourage inventors in every possible way by applying improvements relating to building. Of course, the choice of improvements should be influenced by a strict examination of the principles of the inventions. Architects themselves, by applying themselves to the science of invention, might introduce labour-saving machinery, so that even the Jerry builders should not eclipse a qualified architect in cheap construction.

Another point to consider is the only too-prevalent neglect of architects to apply sanitary improvements. Let architects first apply the science of construction; secondly, the science of hygiene. The intelligent public would then see at once the difference between Jerry and scientific construction. If the public, instead of venturing to purchase property after a personal examination, would ask for an architect's certificate of character of the property, the Jerry builder would soon be an extinct animal. At present, he occasionally succeeds in a wonderful manner, and after a few fortunate speculations, he dubs himself architect, and obtains a brass plate. How long have architects to suffer from the impunity and criminal actions of these quacks? A legal charter, granting privileges to duly qualified architects similar to those granted to the medical and legal professions, is all that is required. The present architectural examinations, except for personal satisfaction, bring no exceptional privileges.

The number of architects (save the mark!) augmented as described has created a great disproportion to the actual necessities, as will be seen on examining the number of applicants for any public appointment lately vacant. An examination, enforced by legal authority, would certainly reduce the number to a more reasonable ratio. The present luxury so prevalent in this country has at last influenced architectural adornment. Within the last four years structures of all descriptions have been built, and many evince in their external decoration a luxuriousness equal to the architecture of the

voluptuous Venetians. If art loses her chastity degeneration destroys her. Even the style of architecture now most generally adopted,—the Queen Anne,—evinces that effeminacy which is slowly but surely destroying our character as a bold, persevering, industrious, and hard-working nation. In some branches of architecture,—for instance, the decorative art,—we have greatly improved during the last few years, and the improvement has been truthful. Almost all the British productions allied to architecture which were exhibited at the Paris Exhibition were unsurpassed in ingenuity, originality, and beauty of design. If those architects who have shown such talent in decoration would extend their ability to improving textile and fancy goods designs, they would no doubt resuscitate many of the slowly-expiring branches of British trade. The Bradford fancy goods trade, for example, is suffering from French competition. The textile material of the Bradford manufacturer is superior to the French article. But the delicacy and beauty of the French designs seduce the fair purchasers. The proper adornment of a utilitarian subject need not be expensive if the adornment be true to its purpose. The labour of working stone for ornamental purposes is immense, and, therefore, costly. But architects have a medium in terra-cotta for external decoration, which is nearly equal in beauty to stone, far more durable, and less expensive. We must not forget that our country has entered upon a new and severe ordeal, a battle of commerce against America, Belgium, Switzerland, Russia, Germany, Hungary, and even India, and it behoves all true patriots to help her by indomitable energy, ingenuity, industry, sobriety, and economy to pass safely through the ordeal. By excellence, purity, beauty, and especially cheapness of workmanship, England may retain her proud position as the first commercial country in the world; but if these moral truths are neglected, her fate will be that of the once glorious Venetian republic.

DO NOT STARVE OUR LADS!

A few lines of explanation appear to me to be requisite in addition to the very interesting article on school-planning in last week's *Builder*.

What are the arrangements contemplated for that important item of education, the boys' dinner?

Prayer at nine, and class from that time till twelve, with ten minutes' break. Afternoon school from half-past twelve till three, with a short interval. Then prayer, and exit. Are the boys to fast all this time?

It may, perhaps, be suggested that they may take some hasty refreshment in the half-hour from twelve to half-past twelve. But surely the absence of a regular mid-day meal is a thing wholly inconsistent with a proper regard to the health of a growing boy. Brain-work,—if it be work, and not mere dawdling in a class-room,—is nearly as provocative of hunger, and certainly makes as great a demand for nutriment, as does the exercise of the playground. Then the journey of the boys to the school, often effected by railway, is another demand on the physique. Unless at least one regular meal interpose in the six hours passed within the walls, the educational power of the establishment will be to a great extent wasted, owing to its application at a time when the physical state of the boys is not best suited to respond to the call on their mental energies.

It may, of course, be possible to accustom boys to six hours of comparative fasting, and even to make the majority of them feel comfortable under the *regimen*. But that is hardly the way in which to regard the question. First, the finer nervous systems, belonging often to those who will best repay the cost of tuition, will suffer the most. A means of equalising the most capable and least capable lads, which may be very republican, but, at the same time, very wasteful of the national intellectual material, will be thus adopted. Secondly, taking the reduced level all round, it will be considerably lower than that which might be attained by a due attention to physical education.

As to the breaks in the course, and the enforced aëration of both the lungs of the boys and the class-room, its value can hardly be overestimated. One example of the utility of such a course is to be found at the Royal Military Academy at Woolwich. There, at different hours during the day, the cadets fall into line in the open air before proceeding to some new duty. The increase in bulk and strength that may be noted, term after term, is no doubt very closely dependent on this bit of wise tyranny.

In a book which has been more than once referred to in your columns,—Dr. Roberts's "Manual of Anthropometry,"—it is stated that the average increases in weight of public school boys, naval and military cadets, and medical and university students, from thirteen to eighteen years of age, are respectively 8 lb., 10 lb., 12 lb., 16 lb., and 14 lb. In boys of the artisan class, and of the town population, the corresponding increases of weight are 4 lb., 6 lb., 10 lb., 12 lb., and 10 lb. Is it possible to add anything to the mute eloquence of such a statistical fact?

In the former case there is a stimulus to hunger given by intellectual work. But, at the same time, there is good food, and, for the most part, good air. In the City of London School the stimulus is to be provided. But, unless the food be also provided,—and that at the time when nature most demands it,—we get a pull upon the tissues instead of upon the digestion. It will tell on the weight of the boys. Weight, no doubt, is not everything. But, in a case of this kind, increase of weight is a matter of more importance to the completeness of the future man than accumulation of marks in the class-book; and if, in the interest of obtaining the latter as rapidly as possible, the former be neglected, we are breeding under-sized and under-constitutioned boys.

It is very possible that this has been duly attended to in the regulations of the school, but it is not mentioned in your article. Nor does it appear at what times, or under what regulations, the dining-room for 200 boys is to be used. The bill of fare as to Latin, arithmetic, algebra, Euclid, French, German, and natural sciences, is enough to make those of us who are no longer boys look with something like envy on what is now being provided for the rising generation. But as far as our common mother, old England, is concerned, if she had to choose between 1,000 boys of sixteen who had made fair advance in that *curriculum*, and who averaged 62·93 in. in height, 28·97 in. in chest girth, and 106 pounds in weight, and another 1,000 boys of the same age, who averaged 66·40 in. in height, 33·08 in. in chest girth, and 128·3 pounds in weight,—how much education of the brain would she consider to make up for such a deficiency in the physique? Not that the two need be put in opposition. Quite the contrary. But if boys are to fast,—or to be uncared for as to due feeding,—from the time they leave their homes, at 8 or 8·30 a.m. to that when they return to them, at 4 p.m., or thereabouts, they will only gain some 14 or 16 ounces a month,—if they gain them at all,—at the expense of their constitutions.

Pray say a word in all questions of school-planning as to supplying food, as well as air, to the growing fathers of the future of England.

F.

VIEW ON THE PEGNITZ, NUREMBERG.

One of the daily newspapers not long ago, in a leading article, seriously contemplated the prospect of England's becoming, at some future period, entirely urban, and ceasing to be rural. Now it can scarcely be supposed that the *Builder* objects to building, yet we confess that a feeling almost akin to horror came over us when we read this very singular article, and we were led to a most sincere hope that when this event does take place, house-building will be better understood, both from an artistic and sanitary point of view, than it is at present; otherwise, we are afraid that when this delightful state of things does come about, the difficulties of over-population will be solved by some frightful epidemic, which will sweep off about nine-tenths of the people, and those who are left will be driven mad by the appalling ugliness which will surround them on all sides. When we look at the closely-built streets, houses without a scrap of garden attached to them, badly built, ill designed, and inconveniently planned, sanitary arrangements badly understood, or carried out in so slovenly a manner as to be more hurtful than beneficial to health,—which are, we are sorry to say, distinguishing features of many of the newly-built suburbs of London,—we cannot help expressing our astonishment that such an enormous experience of the wants of modern householders should have resulted in producing a state of things so thoroughly the reverse of satisfactory. It is a painful fact to have to acknowledge that, although we have sacrificed everything like picturesqueness in the planning and building of our towns; although we have sacrificed architectural beauty in our dwellings, for the sake of convenience; although we have expended vast sums of money upon all kinds of sanitary inventions and systems,—we have not improved, in any material degree, the real comfort of our dwelling-houses.

One of the principal excuses for the destruction and reconstruction of our ancient towns has always been the sanitary question. It has always been advanced that the health of the inhabitants required that old streets should be straightened, and the old houses rebuilt upon a modern plan; any expostulation on the score of picturesqueness or beauty has been treated with the utmost contempt, and has been met with the argument that picturesqueness and beauty must give way before sanitary necessities. Thus, all picturesqueness and beauty are swept away, but not always with the good result expected in the other direction. Fortunately, however, for the artist and the lover of the picturesque, the towns in some parts of the Continent still abound in picturesque old buildings, some of which, like those shown in the view we illustrate on the "Pegnitz at Nuremberg," possess little or no architectural detail, and might be the work of almost any period during the Middle Ages. Yet, although devoid of the higher qualities of architecture, they are singularly pleasing, and answer their purpose in an excellent manner; they are, moreover, very instructive to the student of architecture, because they serve to show that effective buildings may be erected without detail and entirely devoid of ornament.

It is commonly said that modern buildings fail to produce the effect which their builders had pictured to themselves on account of their cheapness. We doubt much whether a Mediæval builder would have considered scarcity of funds a sufficient excuse for the production of an inartistic building; in fact, some of the most picturesque works during the Middle Ages owe that picturequeness to the very difficulties brought about by the diminution of funds. Those who recollect the old capping of the tower of St. Maclou, in Rouen, must, we think, regret that this exceedingly picturesque make-shift has recently been destroyed for the purpose of completing the design as originally intended. Who would for a moment propose the removal of the curious old roofing of the south tower at Antwerp, for the purpose of carrying up another steeple, or who would like to see the old temporary belfry at Gmund replaced by a new tower?

NEW PREMISES, BISHOPSGATE-STREET WITHOUT.

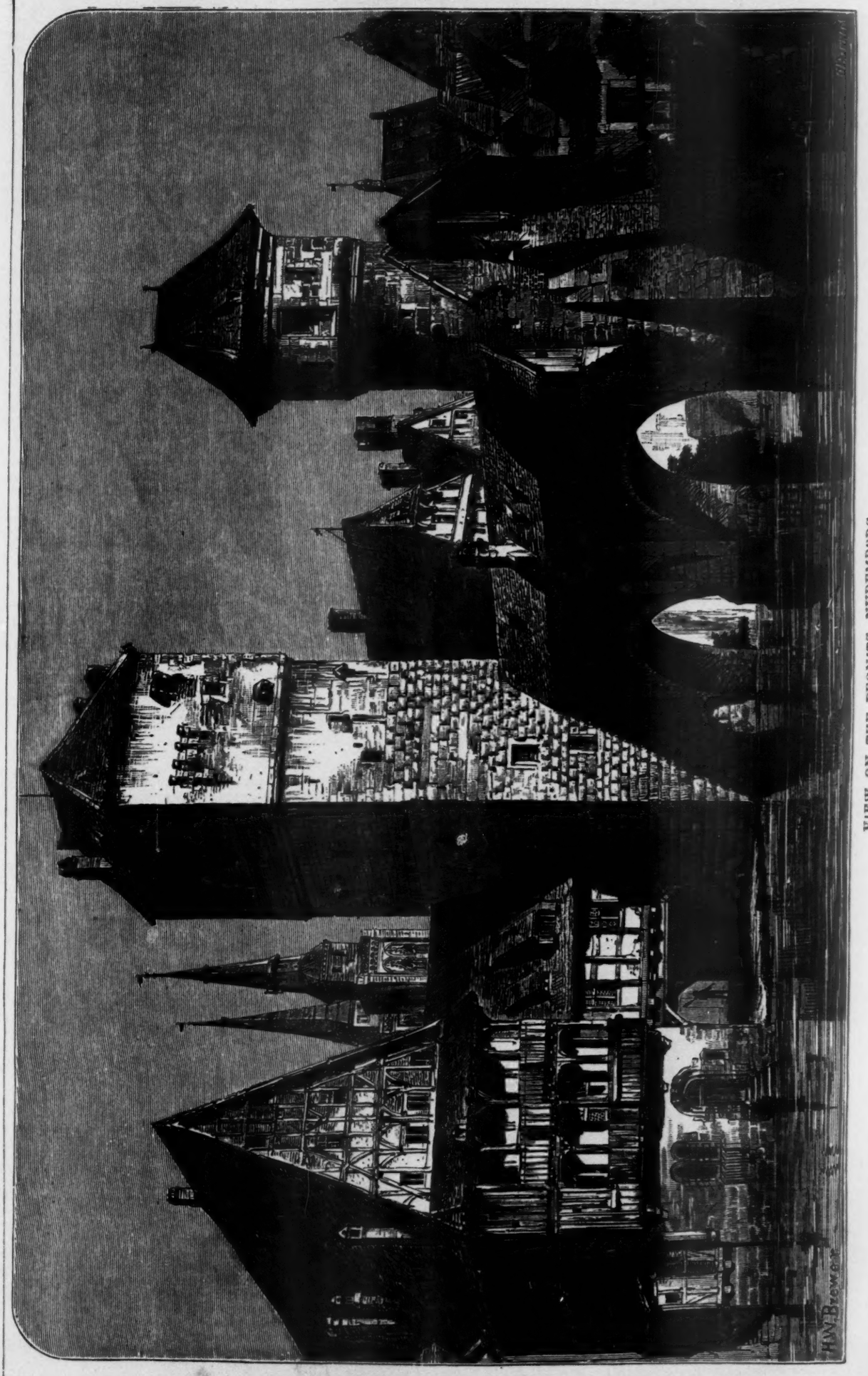
This building has been erected for Messrs. Thomas & Sons, wholesale furniture dealers, whose business has been carried on in Bishopsgate-street since the year 1813. The part rebuilt extends back a distance of 80 ft., with a return frontage to Brushfield-street, providing a floor area of 2,943 ft. The whole of the area is excavated, and forms a spacious and dry basement, well lighted by floor-lights and area windows. The front building contains five floors and the rear one three, all having excellent lights.

Owing to the adjoining property being very old, the work of shoring-up and rebuilding the party-walls was of a very difficult character; but has been successfully managed without damage or loss.

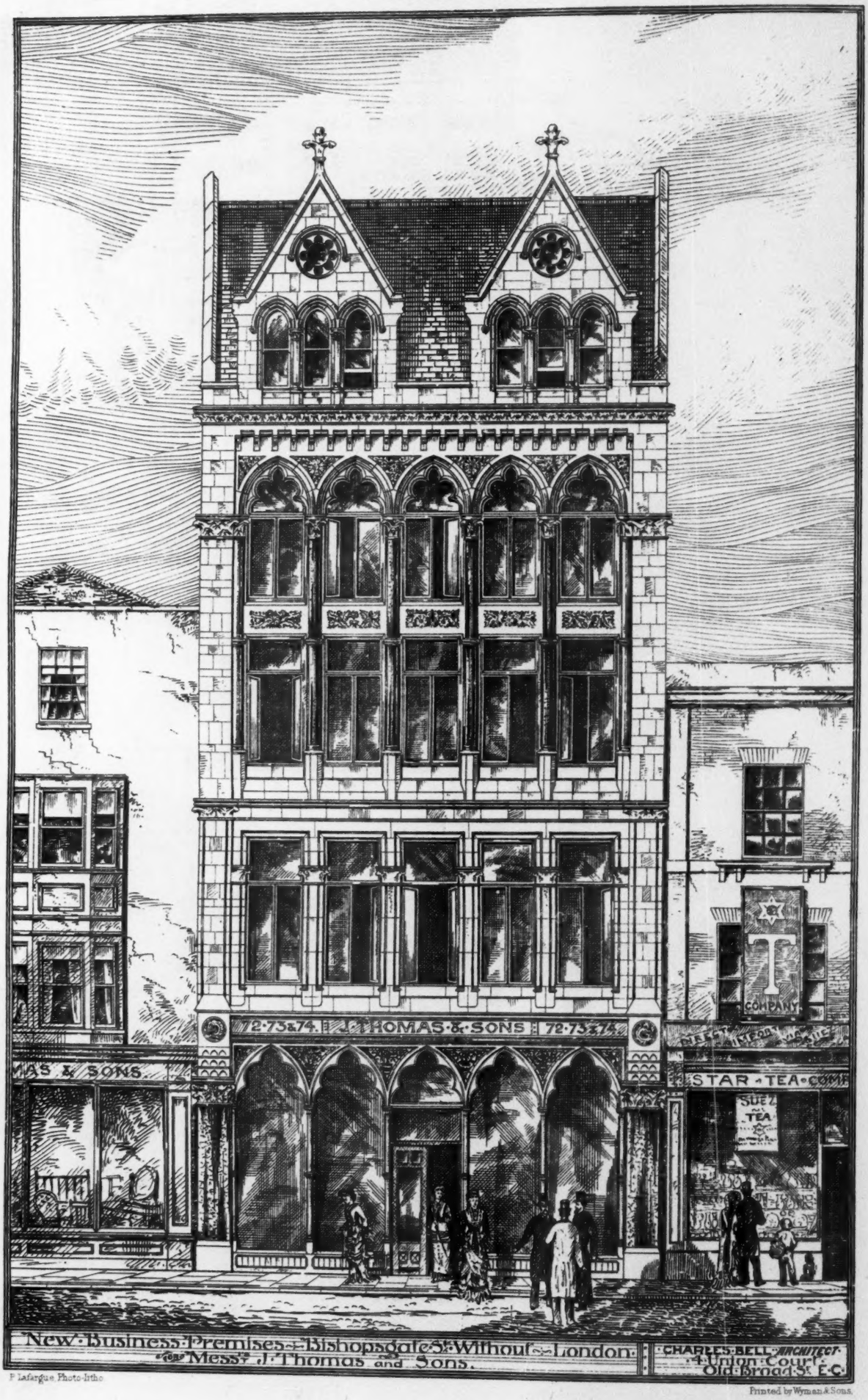
The ground-floor is devoted to show-rooms, in which the various kinds of furniture are displayed in an attractive style. The upper floors are for storing of bedding, &c. A lift communicates from the ground-floor to each floor, specially made for the purpose. The use of iron girders has been so made as to obviate the necessity of hardly any supporting columns, thus giving clear floor-space.

The main front to Bishopsgate-street is all of Portland stone, with Shap granite solid pilasters and columns, and a considerable amount of appropriate carving has been employed, giving a pleasing appearance to the front.

The shop-front is of walnut, with the spandrels of the arcading fitted in with ornamental lead-glazing; all the rest of the windows being of plate-glass. The Brushfield-street front is of brick, with Bath-stone dressings in a simpler Gothic style.



VIEW ON THE PEGNITZ, NUREMBERG.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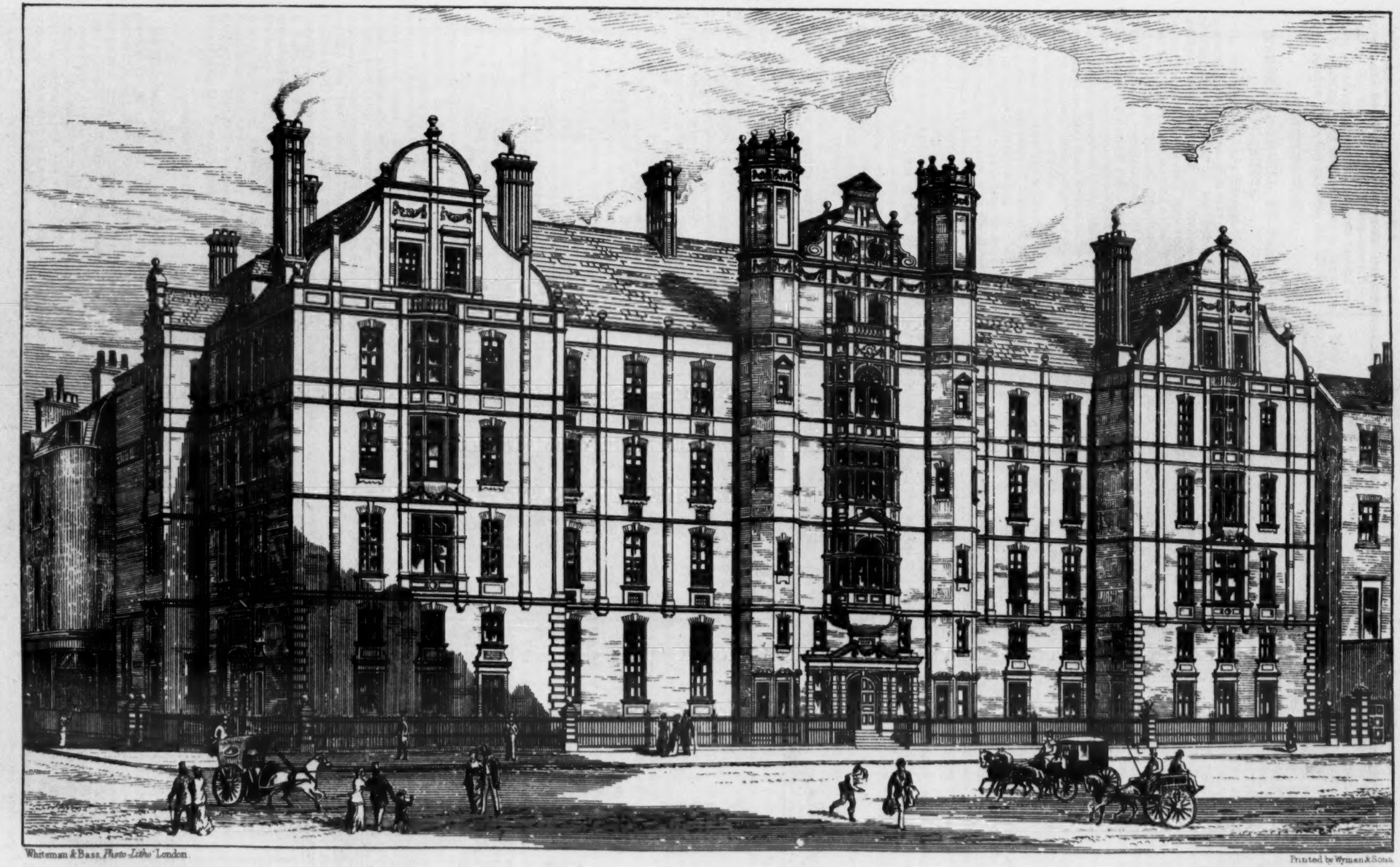


Whiteman & Bass, *Photo-Litho*, London. Printed by Wyman & Sons.

THE NEW BUILDING NOW BEING ERECTED ON THE SOUTH SIDE OF THE FULHAM ROAD, AS AN EXTENSION OF THE HOSPITAL FOR CONSUMPTION, BROMPTON.

MR. T. H. WYATT, ARCHITECT.

The architect is Mr. Charles Bell, of Union-court, Old Broad-street, City; and the contractor, Mr. Woodward, of Wilson-street, Finsbury, by whom the work has been carried out to the satisfaction of the architect in the space of six months. The foreman was Mr. Wickes.

MEMORIAL SUN-DIAL, ST. PANCRAS GARDENS.

On the 7th inst. Lady Burdett-Coutts added one more to her innumerable acts of beneficence by formally presenting to the vicar, churchwardens, and vestry of St. Pancras what is termed a memorial sun-dial, standing upwards of 30 ft. in height, and erected at her ladyship's expense—at a cost, it is said, of upwards of 2,000*l*. It is intended to commemorate not only the reclamation of the disused and dilapidated burial-grounds and their conversion into an ornamental garden for the recreation of the public, but also those whose remains were known to be interred in the two ancient burial-grounds of St. Pancras and St. Giles's-in-the-Fields.

The memorial stands in a prominent position in the gardens, near one of the main entrances, within a space corresponding to that of the mausoleum erected for the late Sir John Soane. The vestry of St. Pancras, with the approval of the ratepayers, and the assistance and sympathy of Baroness Burdett-Coutts, the Duke of Norfolk, and others, successfully resisted the attempts of the Midland Railway Company, who had already obtained by an Act part of Old St. Pancras Churchyard, to further encroach upon that as well as the adjoining cemetery of St. Giles's. Lady Burdett-Coutts determined to show her sympathies with the project for utilising the grounds for the recreation of the public, especially the poor of the surrounding neighbourhood, and for the preservation of the names of those eminent persons whose remains had been buried therein, by the erection of a memorial fittingly to record some of those celebrities whose memory should be handed down to posterity.

The superstructure of the memorial, which is in the Early Decorated style, consists mainly of Portland stone, with four marble tablets and clustered granite columns at the angles, bearing a crocketed gablet on each of the four sides, in one of which is the dial. It has been executed from designs by, and under the superintendence of, Mr. George Highton, architect. The tablets are surmounted by reliefs representing St. Pancras and St. Giles, also Night and Morning, by Signor Facigna. Two tablets on the memorial record the names of men of eminence buried in the grounds, including those of Sir John Soane, John Flaxman, John Walker, author of the "Pronouncing Dictionary," Peter Pasqualine, Thomas Mazzinghi, Father O'Leary, several members of the Norfolk family, Sidney Effendi, Turkish Ambassador to this country, Count d'Hervilly, Charles Louis Victor de Broglie, Archbishop Dillon, &c. The basement is in the shape of three narrow terraces leading up to the superstructure of the memorial, and forming flower-beds, with somewhat novel effect. These are of red Mansfield stone, worked at the quarries. The panels of the two upper terrace tiers contain flowers in mosaics; the top one has also panels representing the four seasons, by Messrs. Wills, Euston-road; the bottom tier panels are also in mosaics, the latter executed by Messrs. Simpson & Sons, of St. Martin's-lane. The whole is enclosed by a curb and iron railing with gates, the latter by the St. Pancras Iron Works Company; while the Portland stone work and fixing have been executed by Messrs. Daniel, of Highgate. Within the enclosure, at each of the four angles, is a lion on a pedestal.

St. Margaret's Churchyard, Westminster. An effort is being made, under the auspices of the rector, the Rev. Canon Farrar, to improve the present unsightly appearance of the churchyard adjoining St. Margaret's, Westminster, and Westminster Abbey, which at present is a disgrace to the neighbourhood, being dusty and dirty in summer, and full of pools of stagnant water in the winter on account of its low situation. It is intended, if possible, not only to raise the level of the churchyard, but to surround it with a dwarf wall, recording on its face all the monumental inscriptions that can be deciphered. The cost will fall not far short of 4,000*l*.

HOSPITAL FOR CONSUMPTION, BROMPTON.

NEW BUILDING.

This building, which is now in course of erection, is intended to form an extension of the present well-known Hospital for Consumption and Diseases of the Chest, Brompton. The existing hospital, which was the first institution of the kind erected for the treatment of persons suffering from consumption, has been found of late years to be quite inadequate to meet the demand made upon it, more especially with respect to the admission of in-patients. The committee determined to erect a new additional building, and for this purpose, having received a large legacy, purchased the freehold of a plot of land situated on the south side of Fulham-road, opposite to the old hospital, and occupied by the houses Nos. 193 to 221 (inclusive), Fulham-road; Nos. 16, 17, and 18, Charles-street; together with the stables, in the rear, facing York-mews, the mean dimensions of this plot being about 250 ft. by 115 ft. Communication between the old and new buildings has been provided by means of a tunnel passing underneath the Fulham-road. The new building is intended to be used for the treatment of male in-patients and the reception of out-patients generally, and the old hospital will, when this new extension is completed, be devoted to the treatment of female in-patients.

Owing to the special requirements for the treatment of phthisis, the wards of this hospital are all to be of small size, the largest only containing eight beds,—an arrangement which requires more space, and also entails much greater cost, than the more usual system of large wards. This great amount of space required by the wards, together with the limited area of the site, necessitated the adoption of several stories in the height of the new building, which in shape resembles a letter H, and is arranged in the following manner:—The basement contains steward's and housekeeper's rooms, servants' hall, Turkish bath, compressed-air bath, drug-store and dispensers' rooms, clinical pupils' rooms, larders, and general store-rooms, together with heating-chamber and coal-vaults, these latter being one-storied buildings kept apart from the rest of the hospital.

The eastern portion of the ground-floor is devoted to the out-patients' department, and contains separate waiting-rooms for 120 men and 160 women, two physicians' rooms, with dressing-rooms for each sex attached, and the general dispensary. In the south-west portion are situated the recreation-room and lecture theatre, a large room 54 ft. by 38 ft., intended to be used for the entertainments, &c., given to the patients, and for the medical lectures delivered to the students. This room and the out-patients' department are both 19 ft. 6 in. clear height from floor to ceiling. The remainder of this floor is occupied by entrance and inner halls, sitting and bed rooms for the resident medical officers, and physicians' consulting-room, &c., all of which have a height of 10 ft.; a mezzanine floor being obtained over them, which contains bedrooms and day-room for the nurses.

The principal entrance is from the Fulham-road, and is placed in the centre of the building, an exit for out-patients being provided in the east wing, and another door leading to a side yard being formed at the end of the corridor in the west wing.

The first, second, and third floors are entirely devoted to the accommodation of the in-patients, and are all arranged in a similar manner. Each floor contains nine wards, holding from three to eight beds in each, and one isolated ward (holding one bed) for any special case; thirty-seven beds being provided on the three floors. These wards have in all cases either a south or west aspect, and the height of these floors is either 13 ft. 6 in. or 13 ft., the average cubical space per bed being at least 1,500 cubic feet. The corridors giving access to the wards are unusually spacious, being intended for the patients to sit and walk about in during the daytime, and in the centre of each floor is a large dining-hall, 48 ft. by 20 ft. with an oriel window at one end. Provision is made on each floor for patients' bath-rooms, lavatories, linen and clothes, inhaling-rooms, nurses' rooms, and ward sculleries.

The fourth floor contains in the central portion a large kitchen and scullery, with larder, stores, &c., on one side of it, and living-room and bedrooms for the cook and her assistants on the other, these latter rooms being formed in the roof. In another part of the same floor, but quite cut off from the kitchen department, are placed the bedrooms for the female servants of the establishment. Communication between the different floors is provided by means of two large staircases of teak and two small stone staircases in the turrets, which run from top to bottom of the building; in addition to these a large hydraulic lift, capable of carrying five or six patients, and two large food-lifts (also worked by hydraulic power), working from the basement to the top floor, are provided.

The system of warming and ventilation is intended to be very complete, fresh air being admitted over hot-water coils at the floor level of each room, and the foul air extracted at the floor and ceiling levels by means of vertical shafts in the walls carried up to the roof, where they are collected into horizontal shafts which communicate with open ventilating-towers, in which powerful steam coils are placed, the heat from which causes an upward current of the foul air. In addition to the hot-water coils each ward has an open fireplace for the sake of comfort and cheerfulness. The sanitary arrangements throughout are to be carried out upon the most approved modern principles.

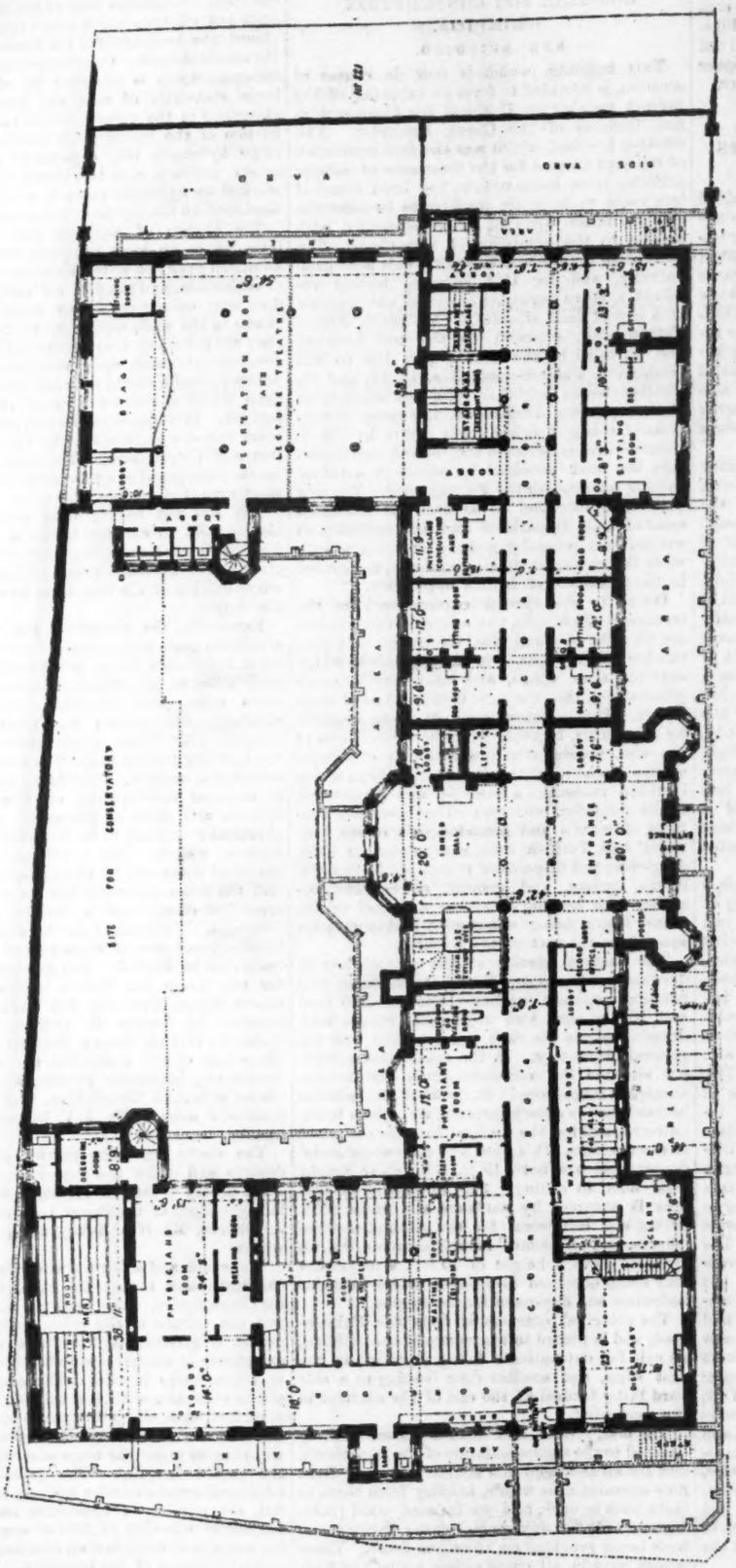
The soil not having been considered sufficiently solid to carry so heavy a pile of buildings, it was thought desirable to introduce a thick bed of Portland cement concrete over the whole surface of the site, so as to secure a good foundation.

Externally the elevations are treated in a somewhat plain adaptation of the "Queen Anne" style, the fronts being faced with Allen's Red Suffolk Bricks, with bands of warm buff-coloured terra cotta, and Ancaster stone dressings sparingly introduced; the roofs are to be covered with Sedan green slates. Internally the building will be finished in a very plain but substantial manner. The floors throughout are of fireproof construction, on Fox & Barrett's system, and those of the wards, corridors, and principal rooms are to be boarded with teak in narrow widths. The woodwork on all the principal floors will be of pitch-pine, varnished, and the walls internally are to be finished in trowelled stucco, with a Parisian cement dado 5 ft. high. The tenders for the whole of the new building, inclusive of extra cost of foundations, amounted to 60,000*l*. The general contractors for the works are Messrs. Higgs & Hill, of Crown Works, Lambeth, the terra cotta being supplied by Messrs. H. Doulton & Co., the hydraulic lifts by Messrs. Eastons & Anderson, the whole of the works for the warming and ventilation, hot-water service, &c., by Messrs. Haden & Son, of Trowbridge, and the internal plumbers' work by Mr. R. P. Beattie, of Victoria Station.

The works are being carried out from the designs and under the superintendence of Mr. Thos. Henry Wyatt, of 77, Great Russell-street, late President of the Royal Institute of British Architects, Mr. Wm. Tokey being his clerk of works.

We would add a few warm words in behalf of the institution itself,—the Brompton Hospital for Consumption. The mild air of the locality and the nature of the subsoil, which is sandy gravel, of great depth, have been proved by an experience of many years to be highly beneficial to consumptive invalids. The acquisition of a site in connexion with the existing hospital was most fortunate, and will conduce to the efficient and economical working of the extension, which will thus be under the same administration with the parent hospital. The pressing need of additional accommodation has long been severely felt, the number of applicants on the list,—frequently upwards of 300 at one time,—and the consequent delay in their admission, affording painful evidence of the necessity. This subject has for many years engaged the anxious attention of the committee, and it *is*, therefore, a cause of thankfulness to all connected with the charity that a remedy is now, to some extent, to be supplied, and that this hospital, which has done so much good in the past, is about to enter upon a still more extended sphere of usefulness. It ought, however, to be made generally known that the cost of the site and of the new building will absorb the greater portion of the funded capital, and the income arising from this source will be lost in future, while the additional expenses for the yearly maintenance of the institution upon its extended scale cannot be estimated at less than 10,000*l*. per annum.

The committee confidently rely upon the generosity of the public to support them in the



EXTENSION OF THE HOSPITAL FOR CONSUMPTION BROMPTON.

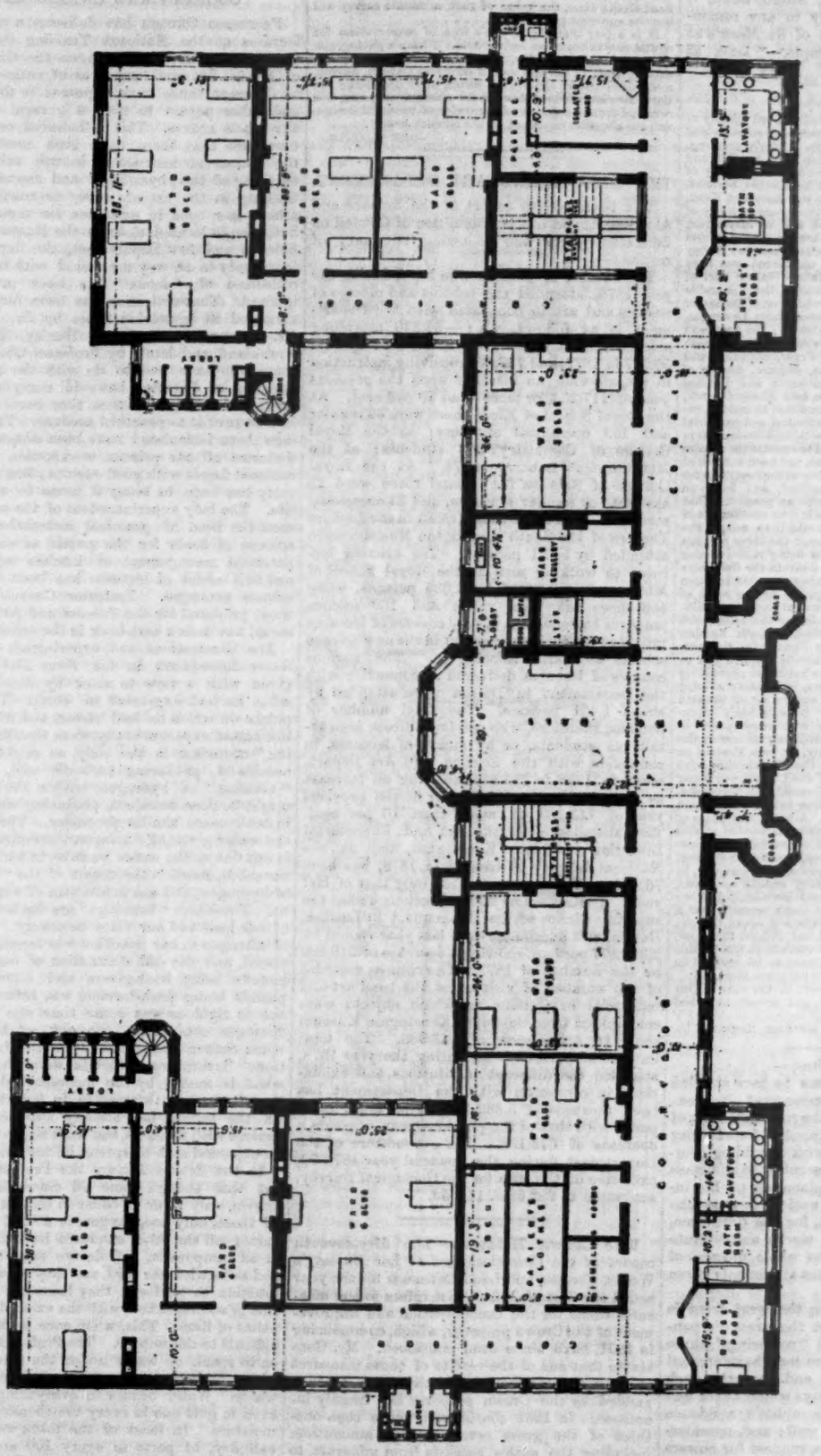
heavy task which they have undertaken, and to assist by their means and influence in carrying on successfully this important work of charity and relief.

We have long known personally the admirable manner in which the affairs of this hospital have been conducted, and the large amount of great good which has been done through its agency, and we most earnestly invite those who are blessed with means to help the committee in the important work which they have in hand. We venture a little out of our way to say that Sir Philip Rose, bart., the honorary secretary and good friend of the Institution, and Mr. Henry Dobbin, the secretary, would gladly give the fullest information that might be desired by any disposed to assist.

Drawings from London Board Schools. An exhibition of drawings, executed by scholars and pupil teachers in the schools under the London School Board, has been held at the offices of the School Board for London, Victoria Embankment, W.C. The exhibition was open during the first three days of this week.

MORE WORK AT ST. ALBAN'S ABBEY CHURCH.

SIR,—As you and your readers take a strong interest in all that is being done with regard to St. Alban's Abbey Church, I beg to enclose a copy of a citation which was affixed to "the principal door of the church" on Sunday, the 9th inst. From it you will perceive that Sir Edmund Beckett now throws over his former colleagues on the Committee, whom he misled into erecting the high-pitched roof over the nave, and induced them to run into debt to do so, and



PLAN OF FIRST FLOOR.

EXTENSION OF THE HOSPITAL FOR CONSUMPTION, BROMPTON.

now seeks to have the whole building, and especially the western front, handed over, without any external control, to his own tender mercies.

The application for the faculty does not appear to be accompanied by any plans, but, from trustworthy information which I have received, there appears to be no doubt that the intention is not to restore or repair the great western window, inserted by John of Wheathampstead, but to remove it altogether, and to substitute for it three nineteenth-century pointed windows. So far as appears from the citation, the whole is to be left entirely to Sir Edmund's taste and discretion, and, indeed, the whole building is to be handed over to him for vivisection, or any other purpose. The insertion of windows in the dark bays means making holes in the wall of the church against where was formerly the abbot's house; and against this the late Sir Gilbert Scott always protested, and I trust that his two sons,—if, indeed, they are still the architects to be employed on the work,—will continue to do the same. The next feature in the abbey to be attacked will probably be the triforium windows of John of Wheathampstead, which will have to be closed to allow of a high-pitched roof being put over the north aisle, to match the newly-erected roof over part of the south aisle; but of this, as yet, nothing has been said. The destruction of the west front is, however, imminent, and I much fear that, unless a powerful remonstrance be addressed to the Bishop, he will grant the faculty for still further obliterating the traditional features of his cathedral. No doubt the offer of Sir Edmund Beckett appears in the highest degree liberal; but if every rich amateur in building were to have one of our principal ecclesiastical monuments handed over to him as a subject on

which to make experiments, where would it end? The answer from Italy to any remonstrance about the west front of St. Mark's at Venice need be but very simple,—"Look at home."

JOHN EVANS.

(*Copy.*)

"Thomas Legh, by Divine permission Lord Bishop of Saint Alban's,—To all clerks and literate persons in and throughout the whole diocese of St. Alban's greeting. Whereas it has been represented unto us by Sir Edmund Beckett, of Batchwood, near St. Alban's, in the county of Hertford, and within our diocese and jurisdiction, baronet, a Queen's counsel, and chancellor of the diocese of York, that a faculty was granted on the twenty-seventh day of March, one thousand eight hundred and seventy-seven, by us as the then Bishop of Rochester, within whose diocese the Abbey Church (now the Cathedral and Abbey Church) of St. Alban's hereinafter mentioned was then situate, unto the Right Honourable James Walter Earl of Verulam, the said Sir Edmund Beckett, the Venerable Anthony Grant, doctor of civil law, archdeacon of Rochester and St. Alban's; the Reverend Waters John Lawrance, rector of the Abbey Church of St. Alban's; the Reverend Owen Davys, rector of Wheathampstead; Henry Joseph Toulmin, John Evans, and Robert Pryor, esquires; and John Thomas Nicholson Lipscombe, esquire, doctor of medicine; Benjamin Agutter, gentleman; and Thomas Kent, brewer, churchwardens of the said Abbey Church, authorising them as an executive committee to restore, repair, and refit the said church for cathedral and parochial service. That the said committee, with such funds as were subscribed for the purpose, proceeded to execute the repairs and restorations most urgently needed, and have exhausted all such funds, and have become liable under contracts for more money than has been subscribed, and have no prospect of being able to do any more at present. That the said Sir Edmund Beckett is willing to continue such works at his own expense, and particularly to restore the western front of the said church, except the three porches (for which a separate subscription is being raised among the Freemasons of England), and to insert in the dark bays of the aisles, or some of them, windows similar to those now in the other bays, without prejudice to the right of the said Committee to do any work not at the time undertaken by him, when they have funds for the same; and whereas the said Sir Edmund Beckett hath humbly besought us to decree a Licence or Faculty for the purposes aforesaid, Wherefore we do hereby require you to cite, or cause to be cited, all persons having or pretending to have any interest in the premises, by publicly affixing this original notice on the principal outer door of the said Cathedral and Abbey Church of Saint Alban's aforesaid, and by leaving thereon a true copy prior to Divine service on the Sunday immediately following the receipt hereof, to appear personally, or by a Proctor or Proctors, duly constituted, before the Worshipful John Elliott Pasley Robertson, Doctor of Civil Laws, our Vicar General and Official Principal as aforesaid, his Surrogate, or some other competent judge in this behalf in the said Cathedral and Abbey Church of St. Alban's, and place of judicature there, on the sixth day after the service of this decree, if it be a General Session of our said Court, otherwise on the General Session of our said Court next ensuing, at the hour of twelve o'clock at noon of the same day, to show cause why a licence or faculty should not issue, according to the prayer of the said petition. And we hereby do intimate by the tenor of these presents that if no appearance be so entered, nor sufficient cause thereon shown, we, our said Vicar-General and Official Principal, his Surrogate, or some other competent judge in this behalf, will proceed to decree a licence to be granted to the said Sir Edmund Beckett for the purposes aforesaid.

Dated this fifth day of November, in the year of Our Lord, one thousand, eight hundred, and seventy-nine, and of our translation the third.

(Signed) GEO. HY. KNIGHT, Registrar."

Another correspondent writes,—

Sir Edmund Beckett seems to have startled people not a little by his last movement. Not content with having his way as the ruling member of a building committee, he has applied for a faculty to enable him to dispense with a building committee altogether, and apparently to dispense also with any detailed explanation of his intended alterations. The notice put on the church-door on the 9th inst., for the first time, is addressed "to all the clerks and literate persons in and through the whole diocese of St. Alban's;" and it rehearses statements given in by Sir E. Beckett.

Considering that restoring the west front is taken to mean knocking out the great Perpendicular west window, and "restoring" three lancets, such as Trumpington may have erected in the thirteenth century, and that the dark bays of the aisles are the bays which never had any windows, because the abbot's residence abutted against the south wall; and, considering that there is implied a request for powers to do what seems good, which might cover any extent of work, there should be much hesitation about granting such a licence. A movement of this kind without the consent of the building committee,—we may say, almost without their knowledge,—may be deemed good strategy if it succeed, but not by everybody even then.

ARCHITECT.

SIR,—I have read Mr. White's long letter, reiterating what he had said about the destruction of a Norman corbel-table. I emphatically deny that such a corbel-table existed. Mr. White acknowledges that his examination was a superficial one, and is kind enough to impute motives for the removal of this so-called corbel-table, alleging that it was done to obliterate all traces of the Norman roof. He also points to his examination of the marks of the original roof; but when I state that that roof was 284 ft. long, that the duration of his examination was twenty minutes only, and was made in a torrent of rain, with an umbrella over his head all the time, the value of such a minute survey will become apparent to every one. . . . .

It is a pity that Mr. White's idea of conservatism for churches was not of an earlier date. I have a photograph of a nondescript reredos, inserted, by cutting away the ancient work, in the east wall of Boxgrove Church, Sussex, some years ago by Mr. White, which, after disgracing the Early English window above it for about seven years, was removed for the erection of a reredos of beautiful design, and the abortion deposited on the rubbish heap. . . . .

JOHN CHAPPLE.

THE SCIENCE AND ART DEPARTMENT.

THE twenty-sixth report of the Science and Art Department of the Committee of Council on Education gives the following summary of results:—

The number of persons who have, during the year 1878, attended the schools and classes of science and art in connexion with the Department is as follows, viz.:—57,230 attending science schools and classes in 1878, as against 55,927 in 1877, and 727,874 receiving instruction in art, showing an increase upon the previous year of 117,254, or more than 19 per cent. At the Royal School of Mines there were 36 regular and 189 occasional students; at the Royal College of Chemistry 303 students; at the Metallurgical Laboratory 74. At the Royal College of Science for Ireland there were 22 associate or regular students, and 53 occasional students. The lectures delivered in the Lecture Theatre of the South Kensington Museum were attended by 5,491 persons. The evening lectures to working men at the Royal School of Mines were attended by 1,685 persons, being 458 more than last year; and 169 science teachers attended the special courses of lectures provided for their instruction in the new science schools at South Kensington. The various courses of lectures delivered in connexion with the Department in Dublin were attended by about 1,421 persons. The total number of persons, therefore, who received direct instruction as students, or by means of lectures, in connexion with the Science and Art Department in 1878 is 794,547, showing an increase as compared with the number in the previous year of 113,180, or more than 16 per cent. The attendance at the Art and Educational Libraries at South Kensington, and at the National Library of Ireland in 1878, has been 76,064, or an increase of 1,731 over that of last year. The museums and collections under the superintendence of the Department in London, Dublin, and Edinburgh were last year visited by 2,329,877 persons, showing a decrease of 218,889 on the number of 1877. The returns received of the number of visitors at the local art and industrial exhibitions to which objects were contributed from the South Kensington Museum show an attendance of 513,986. The total number of persons who, during the year 1878, attended the different institutions and exhibitions in connexion with the Department has been upwards of 3,589,487. This total, compared with that of the previous year, presents a decrease of 672,152. The expenditure of the Department during the financial year 1878-79, exclusive of the vote for the Geological Survey, amounted to 282,553*l.* 11s. 5d.

The Crown Estates.—The fifty-seventh report of the Commissioners of her Majesty's Woods, Forests, and Land Revenues for the year ended the 31st of March last refers to the measures taken for the concentration and improvement of the Crown property, which, commencing in 1851, have since been continued. Mr. Gore states that one of the results of those measures of improvement has been that the revenue yielded by the Crown property has largely increased. In 1851 considerably more than one-third of the gross revenue, then amounting, including the entire receipts from minerals, to 341,000*l.*, was derived from quit and fee farm-rents, and also from ground-rents, reserved under building leases which had at that date, and, with a few exceptions, have still many years to run. From those rents, with the exception referred to, no increase has been obtainable except by the sale of some of the quit and fee farm-rents, and by the investment of the proceeds in property that improves in value. Notwithstanding that circumstance, the gross income revenue in the past year, including one moiety only of the net receipt from minerals, was 489,448*l.* The net revenue, which is annually paid to the Exchequer (and amounting to 410,000*l.* per annum), has increased in a more than corresponding proportion,

COOKING AND CHEMISTRY.

PROFESSOR CHURCH has delivered a course of lectures at the National Training School of Cookery, South Kensington, on the Chemistry of Food. We avail ourselves of notices which at different times have appeared in the *Times* and other papers to give a general view of the whole course. This is believed to be the first time that there have been combined in the course of instruction in one school the teaching of the physiologist and chemist and a training in the art of a *chef de cuisine*. The school has been in existence for seven years, but, though located close to the Museum of the Science and Art Department, the department is not only in no way connected with it, but its collection of "foods" has been practically ignored. That collection has been formed and arranged at successive times by Dr. Playfair, Dr. Lankester, Professor Huxley, Professor Frankland, and lately by Professor Church, but those who have had to do with the practical teaching of dietaries have in many ways expressed their opinion that they have not seen how to turn it to practical account. The teachings there formulated have been adopted in the dietaries of our prisons, workhouses, and our national forces with good results; but the difficulty has been to bring it home to every-day life. The lady superintendent of the school has seen the need of practical instruction in the science of foods for the pupils as well as the practical management of kitchen apparatus, and this series of lectures has been in consequence arranged. Professor Church's Handbook, prepared for the Science and Art Department, has been a text-book in the school.

The illustrations and experiments the Professor introduced in his *First Lecture* were given with a view to show by demonstration what he had expressed in words. Two main points on which he laid stress, and which were illustrated experimentally, were that the "burning" of carbon in the body, as might be done outside it, producing carbonic acid, and the "burning" of hydrogen within the body, as might be done outside it, producing water, were in both cases similar processes. The whole of the water given off in vapour, perspiration, &c., is not due to the water we take in as fluid or in our solids, much is the result of the "burning" of hydrogen, and the production of water within us. These two "burnings" are the main source of our heat and our force or energy. The part of nitrogen in our nutrition was especially mentioned, and the old distinction of carbon compounds being heat-givers and nitrogen compounds being flesh-formers was referred to as not so rigid as was some time ago supposed. Nitrogen compounds can act as heat-givers when carbon compounds are not in full proportion. Several experiments were shown as to what is meant by the incombustible salts, or "ash," so often referred to in food text-books. As the school has already supplied seventy centres with teachers, the work begun there may be expected soon to spread its influence.

In the *Second Lecture* the Professor pointed out that though some 66 elements are now known, only 15 or 16 occur in the human body. Of these, only one, oxygen, is a food as an element; all the other elements have to be taken in as compounds. While we need both water and salts with our food, and they have a definite function to perform, they leave the body when this is accomplished, with the exception of phosphate of lime. This, when once formed, is very difficult to decompose. The Professor then went on to speak of water under the three divisions of its occurrence, its properties, and tests for water. Water occurs in everything we know; even in gold one in every ten-thousandth part is moisture. In most of the foods we commonly call dry, 14 parts in every 100 are moisture. This is the case with flour, peas, rice, &c. Even the artificially-dried fresh oatmeal contains five parts. Milk contains 86 parts of water in the 100. Good butter contains but 10, though for certain reasons it is sometimes manipulated so as to contain more. It is well known that water itself is never naturally pure. Even rain water has "scrubbed" the air, and the Professor has seen rain with so much sulphuric acid in it that it has bleached in spots the purple flower of the convolvulus. When once the rain has reached the earth it takes up more impurities. These are not all necessarily injurious to us, though some may interfere with cooking. The method of testing the colours of different waters by looking at them in 2 ft. tubes was shown,

and then in succession the method of the following tests was illustrated. The oxalate of ammonia test for lime, which is, when present in quantities, a serious drawback in cooking. The boiling of a residuum and the examination of its colour, its absorption of moisture, and its smell on ignition. The ammonium molybdate test for phosphoric acid. The Nessler test for ammonia. The nitrate of silver test for salt. The soap test for hardness. The Condy test for organic matter. The physics of water were then briefly referred to, and it was mentioned how the way in which it conveys heat so easily and so regularly makes it convenient for boiling as well as for loosening particles and making food softer. The heat of boiling water, which varies according to altitude or to depth in a shaft, has a great influence on cooking. Thus in a Papin digester it is found that the ossein of bones can be converted into gelatine. The tendency of all changes in the teaching of the physical sciences is to substitute practical work on the part of the student for listening to lectures or watching demonstrations. Whether the list of tests mentioned above can be so grasped by a pupil from seeing them that she could reproduce the work before her class, or whether she ought not to have laboratory practice for a short period, is a matter that requires consideration if our efforts in improving cooking schools are to come to much.

The *Third Lecture* was occupied with a consideration of the foods which are classed as heat-givers, such as fats, starch, gums, &c. After a general description of the group, Prof. Church proceeded to the experimental consideration of how the members of it are influenced by the processes followed in cooking, and how their presence in food material can be recognised. Referring first to starch, he showed experimentally that the right way to mix starch is in cold water, and then put the solution into very hot water. Starch is partly turned into dextrine by being subject to a temperature which would nearly "roast it." 320° Fahr. will completely change it. It was pointed out that, as at a future lecture it would be requisite to distinguish between starch and dextrine, the chemical tests should be known. The starch test, iodine, can be easily made by dissolving a crystal of iodine and adding some spirits of wine. When iodine is added to a cold solution of starch, a blue colour is produced; with a hot solution the blue colour is not produced. Professor Church took a small mass of wheaten flour, and kneaded it in water till he washed out all the starch, the "heat-giving" portion of flour, leaving the "flesh-forming" portion, which is called fibrin. The fibrin in this case is not quite pure, as there is a little fat and a little mineral matter also. The starch test was applied to show that the part washed away from flour on kneading really was starch. In the change of starch to "dextrine" by roasting, a delicate fawn colour is seen to be formed. The effect of iodine on dextrine is to give a reddish brown tinge instead of a blue. The practical value of these tests is to be shown in its bearings on cookery in a subsequent lecture. There is a great difference in solubility in cold water between the crust of a loaf and the crumb. More of crust than of the crumb will dissolve. Passing on to sugars, the differences between grape sugar and cane sugar were spoken of, and the tests for the one and the other were shown. With cane sugar sulphuric acid gives a dark colour, but with grape sugar it does not. The "sugar test," with common sugar, gives a yellow precipitate. The value of these tests is to be shown in future practical work. Some experiments connected with oils were next taken. Oils dissolved in ether, but not in water. If a mixture of ether and oil, however, be taken and then mixed with water, the oil and ether float on the top with the water below. This fact has practical bearings also. The albumenoids,—fibrin, albumen, myosin, and casein,—were briefly referred to, and some of the conditions under which albumen coagulates were illustrated. A temperature of 140° Fahr. effects coagulation, both with such albumen as may be obtained from the juice of the turnip or from the white of egg. The ordinary acids used in cooking do not cause coagulation, though nitric acid will. After a very rapid reference to fibrin, casein was spoken of, and the effect of an acid, such as acetic, was alluded to as producing a "curd." The conclusion of the lecture was occupied with a brief reference to the way in which "heat-givers" become the source of "force and energy" in the body.

In commencing the *Fourth Lecture* Professor Church alluded to the fact that dietaries based on a knowledge of the chemical constitution of foods were found by practical application to work satisfactorily. The subject has now been examined carefully for so long a time, and the qualities of different foods are known from the average of so many hundred analyses, that errors of observation and experiment may be regarded as being eliminated. The actual daily wants of the body in the various conditions of rest, partial or full work, and the varying climatal conditions, are also more exactly known than they used to be, though much more remains here to be done. English writers have sometimes taken the results of North German experimenters and incorporated them in their works as applicable to England; but this is apt to be misleading, and shows the need of great caution in such important matters. The practical application of dietary tables in India in time of famine has been found of great use For example, the average diet of an English soldier in time of peace is daily,—5 oz. of albuminoids, 3 oz. of fat, 22 oz. of starch, and 1 oz. of mineral matter. This does not include the water in the foods. The amount of water taken in some form or other every twenty-four hours is over 5 lb. It has been found that the famine diet of Indian natives can be as low as 3 oz. of albuminoids, 1 oz. of fat, 11½ oz. of starch, and two-thirds of an ounce of mineral matter. This is not sufficient to keep them in good working order, but it is enough to keep life going in time of famine. It must be borne in mind, in connexion with this, that the calculations for an English soldier are made for a man of 154 lb., while the average of Indian natives is taken at 105 lb. A great defect of rice as a normal food is that it does not contain the required proportions of fat. One ounce of fat should go with every 2 oz. of albuminoids, and it can take the place of 2 oz. 150 grains of starch. The way in which the redundancy of some constituents in foods can be made to harmonise with the correspondingly less amounts in others, so as to insure having a properly-balanced daily diet, was left for consideration in the next lecture, together with the results of too much or too little work in connexion with the diet selected. Professor Church showed the weighed amounts of albuminoids,—starch, fat, &c.,—daily needed from one source or another, but he pointed out that the mere taking into the body of these quantities was not sufficient. There must be a flavour which will stimulate the secretions of the saliva and gastric juices concerned in the work of digestion. Consequently, it is not enough to blindly follow the tables drawn up. The amount of energy obtained from one day's food may be reckoned at 3,300 foot-tons, of which only 660 can be used for external work. This, Professor Church said, was the result of most careful investigation. The rest of the energy is expended as heat, in the working of the heart, and the driving of the blood, &c. Thus, only about one-fifth of the energy derivable from the combustion of our food is available for work externally.

Having in the preceding lecture stated generally what is requisite in a day's ration, Prof. Church commenced the *Fifth* by giving in detail the sources from which the daily 4,900 grains of carbon and the 300 grains of nitrogen can be obtained without undue waste and without taxing the digestion with what is not really needed. He began with bread and bread-stuffs, including wheat, maize, rice, &c., and this was followed by an account of leguminous fruits, and afterwards of tubers and roots and green vegetables. Professor Church stated that he had during the last two or three years paid much attention to bread-stuffs, and he especially alluded to the great change recently effected in wheat-milling. Instead of the wheat being torn to pieces, as it formerly was, by grinding stones, it is now becoming more common to adopt Wegmann's process, which is to squeeze the wheat between porcelain rollers. The method of pressing, squeezing, or pounding wheat is of importance as influencing the products obtained from it. In some millings only three products are made, but by other methods there are more, and a diagram was exhibited showing eleven products, known as meal-flour, whites, seconds, middlings first and seconds, sharps first and seconds, pollard first and seconds, and bran. The recognition of these the Professor spoke of as of great importance, and he referred to the results of many analyses which he had made of each. The great difference in the relative nutrient values of these had not yet received that attention it demanded. Indeed, the table which he showed, he said, had been but recently completed, and was not yet published. One or two of the extremes might be selected in illustration. Of fat, meal contains 2 per cent., flour 1·7, first sharps 3·5, first pollard 5, and bran 2·8. Of albuminoids, meal contains 10·7 per cent., first sharps 16·5, pollard 15, and bran 13·6. Of fibre, meal contains 2·4 per cent., first middlings 1·7, first pollard 6·8, and bran 10·8. Of ash (mineral matter), meal contains 1·8 per cent., second sharps 2·9, and bran 6·1. It is therefore very important to know what part of the grain of wheat is being used as a food. The structure of a grain of wheat was illustrated with its central mass of hexagonal starch cells surrounded first by a layer of "brick-like" cells, rich in nitrogen, and these again by six thin coats. Professor Church has found as the average of many analyses that the embryo contains from 23 to 35 per cent. of albuminoids (flesh formers). A table was also shown of the relative values of oatmeal, maize, pearl barley, rice, and bread, the table being the result of a long series of analyses undertaken by the Professor. While oatmeal contains 10·1 per cent. of fat, and pearl barley 1·3, rice has but 0·5. Oatmeal has 16·1 per cent. of albuminoids, pearl barley 6·2, and rice 7·5. The quantities of fibre and ash were also given. In the preparation of the pretty-looking pearl barley there is much waste. One hundred pounds of barley give but about 38 lb. when it is "pearled," and practically about 17·6 per cent. of the nitrogen is given to pigs. Again, though there is much fat in maize, this is lost in hominy. It should be noticed that the ash of oatmeal is rich in phosphates, and is a valuable food when it can be digested. The natives of India, who use much rice, so poor in fat, make up for it by various kinds of pulse, and Professor Church has had forwarded to him as many as thirty or forty different kinds for analysis. When officially dieted the natives are also supplied with some kind of fat. As to bread it is not a complete diet in itself, as it is too rich in carbon and not rich enough in nitrogen. The mineral matter in it does not represent only the mineral matter of wheat, as there is much added salt, and the proportion added is important. The tables of quantities of various kinds of food that will supply the daily needed 4,900 grains of carbon, and the 300 grains of nitrogen, differed somewhat from the tables given in the South Kensington Handbook, as Professor Church said they were now calculated with greater accuracy. The relative proportions do not, however, seriously differ.

The *Sixth Lecture* treated of breadstuffs, peas, beans, and pulse. There are at present three methods employed in this country by which carbonic-acid gas is formed in dough, the small bubbles of which give bread its vesiculated structure. In one process the carbonic acid is driven in ready-made from a vessel in which it is separately prepared. This is the bread known as aërated. Of the three processes in which carbonic-acid gas is formed in the dough, two are chemical processes and one is by the action of yeast. Bicarbonate of soda and tartaric acid are in one process used, when tartrate of soda and carbonic acid result. The objection to this is that the tartrate of soda taken habitually is liable to cause derangements in the system. Bicarbonate of soda and hydrochloric acid are also used in another process to produce the needed carbonic acid, and here the interchange leads to the formation of water and common salt as well. The danger in this case to be guarded against is the presence of arsenic. The more common process, however, is that in which the yeast-plant is used, bringing about those mysterious changes which are still so imperfectly understood. Yeast has the power of converting the starch of flour into glucose,—a sugar. This sugar is further broken up into alcohol and carbonic acid. The alcohol escapes and the carbonic acid gives the vesicular structure as in the other cases. Of all the cereals, wheat yields the best bread. This is believed to be due principally to the character of the nitrogenous matter of wheat. The main constituent is a fibrine, and it can be readily obtained for examination by making a little flour into a dough with water, and then washing the starch out by means of a stream of water. There is then left a greyish-yellow, tough, elastic mass, which is gluten. Speaking of peas, beans, and various kinds of pulse, it was pointed how much more nearly the different kinds agree in composition than the

cereals do. The great drawback to the use of various kinds of pulse is, that they are so difficult to digest. They are an excellent theoretical food, according to analysis, but they are a severe tax on digestion. Of all the beans, none presents a better typical food than the soy bean, and it would be a valuable introduction to this country. Lentils have been much spoken of lately as a good food, and they undoubtedly approach to a good typical food, but they are bitter, astringent, and not easy of digestion. It has now come to be pretty well recognised that the food of a man doing hard work should have flesh-formers to heat-givers in proportion of 1 to 4½, and that the food of a child should have 1 to 7. Bread gives 1 to 7½, when the heat-givers are more than even a child wants, so it is not a good food by itself. Pulse gives (taking an average) 1 to 2½, which is far too small. In these calculations heat-givers are reckoned as starch. Potatoes give 1 to 16, according to the latest analyses, the old 1 to 8 being evidently an error. Onion is 1 to 4, an excellent proportion, though onions are not much in favour as food. In looking at the relative values of flesh-formers and heat-givers in foods, the actual amount of water must not be forgotten. The amount of water present in different foods has been referred to in a previous lecture. Potatoes have as much as 75 per cent. and onions 91 per cent.

In the *Seventh Lecture*, Professor Church took up the subject of the food values of roots and tubers, green vegetables, and fruits. Here, as in the former branches of his subject, the results given were those arrived at from experiments extending over a long period which he has himself made, and several of his figures were different from those generally accepted. This is a matter of importance whenever, at home or in our colonies, dietaries are calculated with a nicety based on the accepted tables. For example, in potatoes the relation of flesh-formers to heat-givers has been calculated as 1 to 10. Professor Church finds it is not more than 1 in 16, and perhaps barely that. Nothing, however was said about the possibility of a variation from time to time according to meteorological conditions. Coloured diagrams have been prepared showing the relative proportions of heat-givers and flesh-formers in different vegetables. As a rule, there is more mineral matter in roots and tubers than in cereals. For example, the proportion of mineral matter to combustible matter is in turnips 1 to 6, while in wheat it is but 1 to 72. The details of the chemical constitution of many plants were given, and it was then mentioned that in considering the amount of mineral matter in a plant its quality is an important point. Those mineral ashes are most active which contain most potash. Nearly all the mineral matter is made up of this and phosphoric acid. Nitre is largely found in some cases, and though it is not a nutrient, it is supposed to have some good effects. Endive, lettuce, and watercress are rich in nitre. In connexion with asparagus, the reason for cooking bundles with the heads out of water was explained. The green tops are the youngest and most delicate, and the nutrient matter from them would pass into the water. When asparagus is immersed in water one-third of the nutrient matter escapes. Potatoes should, when boiled, be boiled in brine, the boiling temperature is then much higher than 212 F., and this higher temperature makes the potato more broken up for digestion. The use of seaweeds as a food was mentioned, and their more general use was recommended. Fruits, using the word in the general and not in the botanical sense, can hardly be called substantive foods; but the citric, malic, and tartaric acid in them have beneficial influences.

The Professor devoted his *Eighth Lecture* principally to milk and products from milk—cream, butter, and cheese. Milk being the first of the animal products considered in the course, some generalised statements were made comparing vegetable foods and animal foods. The chief practical point was that the animal foods are much richer in nitrogenous compounds, and are more flesh-forming. Although animal food looks so much more solid than vegetable food, it must not be forgotten it is very watery, pure muscular tissue containing as much as 77 per cent. of water. Neither starch nor cellulose occurs in animal foods, while sugar is generally absent, or else exists in mere traces, except in the case of milk. The average composition of good cow's milk is about 87 per cent. of water, and 13 per cent. of solid residue. The milk of some Normandy cows, which Professor Church had analysed, gave as much as 16½ per cent., but this was an unusual amount, and the yield was not great. Out of the average 13 parts per cent. of solid residue, only four parts are flesh-formers. It is, however, important to remember, in regarding milk as an article of diet, that the ash or "mineral matter" is rich in phosphates. There are four phosphates at least, and probably more. In addition to the phosphates of lime and magnesia there is phosphate of iron, which supplies a large part of the iron in blood, and in early infancy supplies the whole of it. As the 13 per cent. of solid residue is the recognised amount that should be present, salt or sugar is sometimes added by those who adulterate milk to make up the amount, but this is not often done. Specific gravity is often considered a safe and ready guide as to the adulteration of milk, but this cannot be relied on, even to test the amount of adulteration by water. Cane-sugar is sometimes added, but the difference between this and the natural milk-sugar is not difficult of detection. Sometimes common sugar is added, and sometimes glycerine, which when good is very harmless; but it is difficult to understand how it can be obtained cheaply enough to be used as an adulterant if good. The difference in the composition of the milk of different animals was given on diagrams. To make cow's milk assimilate closely to the composition of human milk, it is requisite to add only 10 to 12 oz. of water to the pint, and from 1¼ to 1½ oz. of milk-sugar, which can be readily purchased. That is, proceeding on the assumption that the cow's milk is not adulterated to begin with. With regard to skim milk, many misunderstandings have been current. It is richly nitrogenous, and is a useful article of diet. Several preparations called "milk preserves" are now sold. It is true they prevent milk from turning bad, but they contain borax or boracic acid, and we do not yet know what effects much of this would have on the system. Many people say that the adulteration of milk is not injurious, but if milk does not contain what we expect it does contain, it is injurious, from the fact that it does not supply the nourishment expected. In speaking of cheeses, Professor Church drew attention to the large amount of bone-forming material they contain. A good cheese has 3 per cent. of bone-forming material.

In the *Ninth* and *Tenth Lectures* the practical points had reference to the preparations of cocoa. Cocoa nibs themselves,—the cleaned, roasted, and crushed seeds of theobroma,—are too rich and heavy as a beverage. "Pressed cocoas" have much of the cocoa-butter removed from them, and "soluble cocoas" have starch added. So great is the amount of heat-givers in cocoa that in 100 parts they give an equivalent of 132 parts of starch. Soluble cocoas, so called, do not, however, give a solution of cocoa; a thick mucilage is produced with boiling water; but the finely-ground cocoa is held in suspension only. Ground cocoa is often ground in iron mills, and a quantity of iron,—an undue amount,—is generally given to the cocoa. The proportion of flesh-formers to heat-givers (reckoned as starch) has been usually given as one to eight; but recent analysis has shown it to be one in eleven only. The Professor stated it had been his intention to give some practical illustrations of the method of conducting analyses; but he found he should have to be content with a verbal account of some one or two of the processes. His own method for the analysis of meat was described, beef being selected for illustration. Two separate portions have to be operated on. The one gives the fibrine by treatment with hydrochloric acid, and the other gives the water, ash, and fat. The water is estimated by weighing after drying, the fat by solution with ether, and the ash by weighing after ignition. The analysis of a vegetable substance was very rapidly sketched. In conclusion, the subject of daily dietaries was taken up. It had been several times mentioned in the course of the lectures that 300 grains of nitrogen and 4,900 grains of carbon were daily needed for an average man of 154 lb. weight, in health and work. Several examples of dietaries for muscular work were given. Such food as turnips would have to be taken at the rate of one quarter of a hundred-weight a day,—an inconvenient amount,—while 10 oz. of cheese and 20 oz. of rice supply what is needed. Bread, eggs and bacon, or beans and bacon, furnish a compact dietary for muscular work. A good proportion of flesh-formers to heat-givers is one to five for adults, and one to seven for children.

WHO WILL HELP THE GIRLS?

SIR,—Who would not help the girls if he could? Over and over again have I been consulted upon this subject, and asked what occupations are open to them. All the applicants would appear to imagine that there must be many "genteel" occupations which might be easily learnt, say, either in a few weeks or months, which would insure a competence for life. It would also appear to be a very prevalent notion that the branches of "applied" art, as your correspondent, "Meter," has appropriately styled them, are those which would be most easily mastered. Painting upon china, drawing upon wood, and wood-engraving, &c., are specially inquired about, because the applicants ignorantly suppose that proficiency in these is readily attainable, and they may have had the misfortune, at some time or other, to have drawn a Berlin wool pattern. In most of these cases, I regret to say, the applicants cannot afford the requisite length of time, which means expense, to become proficients in the occupations they seek. Nevertheless, they will bravely try, poor things; they take a few lessons of persons who can scarcely help themselves. Then they paint upon china posies such as would not pass muster on a fifth-rate wall-paper, or they "peck" out wood blocks that would not serve even as butter moulds, when too late they find, alas! that there is no demand for such poor wares, and that they are worse off, and minus several guineas, than when they started on their foolish errand. They cannot be made to grasp the simple truth, that what can be easily done, hundreds of thousands could do, and that all skill of any real value, whether in the fine arts or in any other occupation, is only to be attained by a long preparatory training, and even then that only a few can reach that point of excellence which is really remunerative.

Besides these considerations, Sir, I need scarcely say that, as you are perfectly well aware, the labour market obeys laws as fixed and as inexorable as those of the tides. Any number of persons cannot be employed merely because they want to be employed, but only just as many as are wanted. I am afraid, then, that there is no way of helping the girls but through helping the men. There are too many men in the country in proportion to the work to be done. If women could excel the men in handicraft, they would supersede them in the factories, and the men would be turned adrift; if they were on a par with the men in skill, they would lower wages by increasing the supply of labour out of all proportion to the demand, and many of both sexes would be unemployed. It is very hard to have to say it, but there is really but one way to meet the increasing struggle for existence, and that is Emigration; but even then it must be an organised and well-arranged system of emigration, if the last state of the emigrant is not to be worse than the first. Heaven only knows what a state we should have been in in this country by this time, if it had not been for emigration. People ought, in these days, to know that if there be only twelve vacancies to be filled, twenty-four persons cannot be appointed to them, and that before another can be admitted one of the twelve must vacate his post by death, resignation, or dismissal. It is precisely the same in the employment of twelve millions, if twenty-four millions require employment.

The sooner, therefore, that the public are taught that there is but one way of meeting the difficulty the better; for every day's delay increases the mischief and the misery.

W. CAVE THOMAS.

Viaduct, Walton-on-Thames.—The new viaduct forming the approach-road to Walton Bridge was thrown open to public traffic on the 5th inst. The viaduct, which has been in hand for nearly eighteen months, consists of thirteen arches of 26 ft. span; the piers have stone cut-waters, and over the whole length is a white brick dentil cornice and blocking. Although now open for traffic, some weeks must yet elapse before the work is complete, owing to the temporary bridge having to be taken down before the approaches, &c., can be finished. The works are being executed by Messrs. T. Docwra & Son, contractors, at the expense of the county of Surrey, and under the supervision of Mr. C. H. Howell, surveyor for the county, Mr. Charles Hall acting as clerk of the works.

THE NEW CENTENARY CONGREGATIONAL CHAPEL, LANCASTER.

This building was opened on the 13th inst. The church is designed in the Romanesque style and is built of stone. A tower and spire at the south-west angle gives character to the building. Internally, the first consideration was to light the building effectually,—a matter of some difficulty in a galleried building, with light obtainable on only two sides; but the problem seems to have been satisfactorily solved.

The roof is lofty and wagon-headed in form. All timbers throughout are pitch-pine, and simply varnished. The warming and ventilation have received due attention,—the former by hot water, and the latter by shafts on the Tobin system, opening casements, and a trunk in the roof capable of being regulated. The passages are laid with Mr. J. Brash's concrete flooring, resembling marble mosaic. Messrs. Briggs & Lancaster carried out the mason work, &c.; Mr. R. S. Wright executed the joiner's work; Mr. Hartley, the slating and plastering; Mr. A. Seward supplied the heating apparatus; Messrs. Calvert & Heald, plumbing and glazing; Mr. Meadowcroft, the painting; and Mr. J. B. Hartley, the ironfounder's work. The gas-fittings were supplied by Messrs. Richardson, Ellson, & Co., of Coventry. Mr. Dixon acted as clerk of the works. The building has cost upwards of 4,000*l.*, exclusive of the site, and has been carried out from designs, and under the superintendence of the architects, Messrs. Hetherington & Oliver, of Carlisle.

ALBERT-STREET SCHOOLS, BRIDGWATER.

These schools were opened by the Mayor (Mr. W. J. Holland) on the 4th, and are built in the midst of the population for which they are especially intended, to accommodate 400 infants, 150 boys and 150 girls. Throughout the group the class-rooms open directly from the principal school-rooms; the upper panels of the doors are glazed in all cases, and large windows are also placed in the partitions, the head-teachers, without leaving their desks, thus commanding a view of the various class-rooms.

The infants' department consists of a main schoolroom, 80 ft. by 26 ft., with four class-rooms opening therefrom, 20 ft. by 19 ft. each. The boys' and girls' schools are alike in size, the principal room being 48 ft. by 18 ft., with class-rooms 20 ft. by 19 ft. to same. The buildings are lofty, well-lighted, and ventilated. The offices are provided with Moule's earth-closets, and there are the usual conveniences, such as cloak-rooms, lavatories, &c.

The style adopted is a simple treatment of Gothic. The walls are of local rubble, with Coombe Down dressings, the interior being pressed bricks in bands and patterns 4 ft. 6 in. high, above that portion being plaster, with cornice at springing of roof. Of ornamentation there is none, but a pleasing appearance has been obtained by the grouping of the buildings and a judicious mixture of materials.

The cost, including site, fittings, and desks complete, is 3,674*l.*, being 5*l.* 4*s.* 11*d.* per head.

The work has been carried out by Messrs. Chedzoy & Son, of Bridgwater, to the plans and under the superintendence of the Board's architect, Mr. J. Parker (the borough surveyor).

Schools built during the present Year, including the Albert-street Schools, Bridgwater, with Accommodation provided, and Cost per Head, &c.

District.	Rateable Value.	Population.	Name of Schools.	Total Cost.	No. of Children.	Cost per Child.	Name of Architect.	Contractor.	
	£			£		£ s. d.			
Cardiff	270,968	40,000	Temperance Town.	6,800	750	9 4 0	G. E. Robinson, Cardiff.	D. J. & G. Davies, Cardiff.	Including furniture & fittings.
Sheffield.....	809,332	239,947	Woodside.	9,000	950	9 10 0	Innocent & Brown, Sheffield.	Sharp & Son, Sheffield.	
,, ...	...	...	Central.	32,000	960	33 6 8	Ditto.	Ditto.	
Derby	173,650	53,338	Traffic-street.	6,700 extras 1,275	738	9 1 9	Cothurst & Storey, Derby.	Jno. Gilling, Derby.	
London	...	...	Church-street.	12,318	902	9 17 10	...	...	The 204th school built by the London School Board.
Cirencester..	20,000	7,000	...	5,500	500	11 0 0	C. N. Tripp, Gloucester.	George Drew, Stratford.	
Newcastle ...	701,613	128,443	Byker.	10,329	1,064	9 10 0	Austin & Johnson, Newcastle.	Grey & Humble, Newcastle.	Including furniture. Fourth set of schools.
Huddersfield	261,525	70,000	Spring-grove.	14,000	1,083	12 18 7	E. Hughes.	Graham & Sons, Huddersfield.	
Beaumaris...	8,312	2,291		3,300	320	10 6 3	E. G. Thomas, Menai Bridge.	Jones & Owen, Beaumaris.	
Bridgwater	34,014	12,059	Albert-street.	3,674	700	5 4 11	Jno. Parker, Bridgwater.	Chedzoy & Son, Bridgwater.	Including site, sheds & fittings complete.

THE LIVERPOOL SLOP BUILDERS.

Few towns have a more unenviable notoriety for slop and jerry building than Liverpool, although the town also possesses many excellent palatial and tradesmen's structures. There is, however, a certain section known as "Welsh builders," who for years past have been in the habit of running-up houses with the vilest of materials, and this class of builders appears to be almost beyond the reach of the local and sanitary authorities. The neighbourhood of Everton is one of those outlying localities which has long been notorious for the erection of slop tenements, and the discovery which has just been made, and which has been brought under the notice of the Health Committee of the Corporation, would seem to indicate that the existing Liverpool Building Act is defective in its provisions. It appears that the builders of several of the numerous small tenements in the neighbourhood of Everton have been extensively using a mortar or plaster composed of a small quantity of lime mixed with street-sweepings, the latter being largely made up of manure, and this material is used for plastering the insides of the houses. Dr. Taylor, the medical officer of health, states that under the existing law he has no power to put a stop to this practice, as no nuisance is actually experienced at present; but he holds that a nuisance will arise very soon after the mixture has been placed on the walls, and that then he will take measures to repress it. The meaning of all this is, that so far as Liverpool is concerned, under the present powers of the Health Committee builders may go on using material of this character in building with impunity, and that disease may be engendered in the houses so built before action can be taken by the sanitary authorities.

LEEDS LEATHER MARKET.

This market is the property of a company of shareholders, and was erected in the year 1824. It was used as a general provision-market until October, 1827, when it was opened as a leather market, and quarterly fairs were held for some years, but afterwards half-quarterly fairs were established, and are now held.

It has recently been enlarged and improved, to adapt itself to its present requirements. The buildings consist of thirty-three small shops (which are let to tanners, factors, and dealers in leather and tanning materials), enclosing a courtyard, roughly speaking in the shape of a horse-shoe, and entered on two sides by carts-ways. In the centre is a circular building or rotunda, in the shape of a small tower, surrounded by a colonnade of massive masonry, and containing a committee-room. There is also a space above, under a hemispherical dome, originally intended to contain a fan to pump water into the tank or reservoir over the colonnade. In the early part of the present year an effort was made to raise a fund for roofing in the open courtyard, and the committee were so far successful as to be able to proceed with the work. The heavy stone colonnade, consisting of twelve large pillars, frieze, and cornice, and tank over, have been removed, in order to increase the area of the court-yard or market floor. The whole has been covered over with a light timber-boarded roof, the upper parts near the ridge being of glass. The inside walls are boarded, and painted in two shades of colour. The old irregular stone paving has been taken up, and the whole of the flooring has been laid with cement slag concrete, and it is felt that these alterations considerably enhance the comfort of those who attend the market. The works have been carried out from the plans and under the direction of Messrs. Henry Perkin and G. B. Bulmer, of Leeds.

THE UNOCCUPIED LAND ON THE ALBERT EMBANKMENT.

For some few years past the question of laying out the unoccupied land on the Albert Embankment as an open space for the use of the public has been warmly discussed by the inhabitants. At one time it was feared that it was likely to be built upon, and this caused much dissatisfaction amongst the residents in the neighbourhood interested. There is now, however, a strong probability that the public will have the benefit of it as a recreation area, the Works Committee of the Metropolitan Board of Works having recommended that it be appropriated for this purpose.

MASTERS AND MEN.

Stockport.—The operative house-painters of Stockport, have decided to submit for the present to a reduction of their wages from 7½d. to 6½d. per hour. The employers gave a week's notice of the reduction.

Liverpool.—At a meeting of non-society house-joiners and carpenters on the 6th inst., the following resolution was unanimously passed:—"That the non-society house-carpenters and joiners hereby resolve, in the face of a threatened further reduction of wages, to take such action in the matter as will give the united committee of house-carpenters and joiners the necessary moral, pecuniary, and personal support when practicable; and they further resolve that they will empower the non-society committee, working in conjunction with the united committee, to impose and levy 6d. per week upon the non-society men; in the event of the money not being required, a meeting of the subscribers will be held to dispose of it as they think fit." The master builders have intimated to the joiners that from the 31st of March next the wages will be reduced from 7½d. to 6½d. an hour, which the men think is not warranted in the present state of trade, especially considering that in May last they had to submit to a reduction of ½d.

Birkenhead.—The members of the Joiners' Society, of Birkenhead, and a number of non-unionists, held a meeting on the 14th inst., and decided not to accept the reduction of 1d. per hour, of which they had received notice from the employers.

A Wages Dispute.—On the 17th inst., at Worship-street Police Court, George Kerry, builder's foreman, summoned his employer, Mr. George Crabb, builder, Phœnix Works, Kingsland-green, E., for 2*l.* 10*s.*, one week's salary in lieu of notice. It transpired from the evidence that the plaintiff was discharged on a Tuesday for neglect of duty, and his wages were paid to him to the end of that week, and he now claimed for one week's salary. It seems, by the evidence of witnesses, that the plaintiff was absent from the job about fifty minutes, he having been previously cautioned for the same offence. The magistrate dismissed the summons.

STAINED GLASS.

Brighouse.—A two-light stained-glass window has been erected in St. James's Church, Brighouse, to the memory of the late Marianne Barber. It has been designed and painted on the glass by Mr. H. Kennedy, under the direction and superintendence of Mr. John P. Seddon, architect. The design consists of figures to a large scale, representing "Faith and Hope," one in each light. The glass on which the figures are painted was made by Messrs. Rust & Co.

Frisby-on-the-Wreake.—The three-light window in the south transept in the parish church here has been filled with stained glass, the work of Messrs. Clayton & Bell. The design is a group representing the Transfiguration, Christ occupying the central space.

The Artisans' Dwellings Act.—In Manchester it is resolved to form an association for the improvement of the dwellings of the poor under the Artisans' Dwellings Act.

THE MONUMENTS IN ST. PAUL'S.

SIR,—I am glad that some one has at last called your attention to this matter, and hope that it will not be lost sight of until the improvement suggested by your correspondent, "R. E. Bray," is carried out, and something more besides. Taking off the dust is not all that is necessary. No doubt most of those monuments are made of the finest statuary marble the world produces, and executed by the most eminent artists; yet the last time I walked through that noble building dust had so eaten into the marble that an inexperienced eye might have had a difficulty in telling at a glance whether the statues were originally of pure white marble, or oak, or mahogany. Masons have a very powerful composition for getting out this dust and restoring the marble to its primitive freshness and beauty, and the revenues of St. Paul's would not be misspent in getting an experienced man to do this.

SETH MOSLIN.

SIR,—A correspondent directs attention in your number for the 8th inst. to the accumulation of dust on the monuments in St. Paul's Cathedral. It might not be amiss that the attention of the authorities should also be called to the disgusting condition of the outside steps leading to the south door, owing to the droppings from numerous "happy birds" being allowed to accumulate there, interfered with only by the footsteps of visitors, which distribute rather than remove the nuisance. I had ample opportunity of studying this natural decoration and its unpleasant effect (with ladies particularly) on a recent Sunday morning, when I was one of a group of a score or two of persons kept waiting outside in a cold wind for ten minutes after the proper time of opening, awaiting the porter's pleasure; an ordeal not best calculated to assist in preparing the mind for the purpose for which we were assembling and meeting together.

J. B.

WOOD-CARVING.

SIR,—I was not sorry to see by your last issue that there was a lull in the discussion *re* the National School of Wood-carving, as it appeared to me to be drifting into an argument as to the logical capacities of the two writers, rather than throwing any new light on the subject-matter. There were mistakes and truths above the signatures of both "Meter" and "Anselmo." The latter evidently let his enthusiam lead him into exaggeration regarding the want of wood-carving talent in England, and I was pleased to find that "One who sent wood to be carved in Paris" wrote to correct the error, and stating his opinion that, had time permitted, it would have been better executed on this side of the Channel. I feel sure this mistake of thinking good work in this branch of art-industry is not procurable in England is more widely spread than it should be, and I have been endeavouring to find out whence it emanated.

One of the earliest announcements of this fallacy occurred at a meeting of the Society of Arts, and it is more than probable that the gentleman who made the remark founded his theory on the results of exhibitions devoted to the productions of working men, in which a very kindly interest has been taken of late. Who are the contributors at these gatherings? Certainly not the best and most talented of the working men, for they are in constant employment, and it is not to be supposed, therefore, that they would spend time and money on the chance of remuneration, when all they do would be well and certainly paid for by their employers. The next or medium workman has occasionally time on his hands, and is, therefore, likely to become a competitor at these exhibitions. A term of apprenticeship may have given dexterity to their fingers, but in most instances their art-education and power of design are very limited and imperfect. There are, of course, exceptions to this as to every other rule, and in a few generations South Kensington Schools of Design may improve this state of things.

The true deduction, in my opinion, to be drawn from the failure of working-men's exhibitions is not that "good work cannot be done in England," but that "one man cannot do it." In fact, there are three required,—the master, the artistic designer, and the wood-carver. The first buys, and for years stores, the wood till in good condition. He provides light and suitable premises for work, and also that peace of mind brought by regular wages. The second, is a man of cultivated artistic attainments, and generally one who has had opportunities in early life of gaining that information and knowledge which are required in designing harmoniously. Now comes the third, the wood-carver, who carries the work out under the control of the two first, and success is gained. Separate any one of these men from the other two and there will be no grand result. Each man has enough to do to learn his own particular part in the play.

The working wood-carver in most cases comes from different strata of society from the artist; he is generally apprenticed early in life, and has to earn wages at the earliest date. How is it possible, then, for him to gain that taste and refinement resulting from patient study of art which would enable him to stand alone? I have given my reasons, and trust I shall not be deemed ungenerous in not taking that interest in working men's exhibitions which at first sight they would seem to claim.

With regard to the National School of Wood-carving, it is fairly started, and the promoters seem hopeful, and I fail to see the use of making success more difficult by antagonistic criticism; even your correspondent, "Meter," does not point out any disaster likely to arise from the existence of such a class. That it was seriously wanted may be open to doubt; but some good, and certainly no harm, may be expected from it. The intentions are honourable: then let it stand or fall according to its merits. In any case it is more deserving of a friendly hand than an angry word.

I may mention that the best work done in this country is seldom exhibited publicly, and the critics have, therefore, little opportunity of judging what is being done, the commissions having to be delivered directly they are finished.

GEORGE ALFRED ROGERS.

THE DESIGNER OF SUNDERLAND BRIDGE.

AT the Liverpool meeting of the Iron and Steel Institute, Mr. J. A. Picton read a paper "On the Progress of Iron and Steel as Constructive Materials," in which he briefly referred to the iron bridge over the Wear at Sunderland as having been "designed by the celebrated Thomas Paine." This statement was founded on the following authorities:—1st, Smiles's "Lives of the Engineers," vol. ii., p. 357, where he says:—"It is a curious circumstance that the next contriver of an iron bridge was no other than the same Tom Paine, whose political writings Telford so much admired. While residing in America, Paine had proposed to build a bridge of this material over the Schuylkill, 400 ft. in span, and he came to England to take out a patent for his invention (the specification is No. 1,667, A.D. 1788). The materials were manufactured at the Rotherham ironworks. They were delivered in London, and fitted together on a bowling-green at Paddington. But the French revolution breaking out, Paine hastened to Paris, leaving his bridge in the hands of his creditors. In the meantime, the materials had been purchased for erection over the river Wear at Sunderland, where the second iron bridge in England was erected after a design by Mr. T. Wilson in 1796." Mr. Robert Stephenson, in an article on iron bridges in the "Encyclopædia Britannica" (8th Ed.) further states:—"About the year 1790, Thomas Paine, the well-known political author, proposed to construct cast-iron arches of framed open panels in the form of voussoirs, and with characteristic energy he put his views to the test by constructing an experimental arch of 88 ft. 6 in. span, which was made by Messrs. Walker, of Rotherham, and exhibited in a bowling-green at Paddington. This experiment was completely successful. It was intended to ship this arch to America, but Paine not being able to defray expenses, the manufacturers took it back, and the malleable iron was afterwards worked up in the construction of the Wearmouth Bridge. A bridge having been determined on over the Wear at Sunderland, the original proposal was for a stone structure, which was subsequently abandoned, and at the instigation of Mr. Burdon, the member for the county, who had gone into the subject with Messrs. Walker, of Rotherham, it was determined to construct a cast-iron arch. Mr. Thos. Wilson was accordingly entrusted with the design, and the ideas of Paine with regard to open vousseirs of cast iron were adopted."

Whoever the designer of the bridge may be, it is certain that at the time of its construction it was believed, and apparently on good ground, that Mr. Burdon was the designer, as stated in an inscription which was placed on the bridge at its completion. It is also worthy of mention that the following letter appeared in the *Newcastle Courant* of October 7, 1796:—

"*To the Printer of the Newcastle Courant.*

SIR,—Observing in your paper of the 13th current an account of the iron bridge lately erected and opened at Sunderland, we have to request that in your next paper you will correct a misstatement in that account, contained in the following words, viz., 'The artists for the iron part are Messrs. Walker, of Rotherham, who have obtained a patent for constructing bridges on the principle,' by stating that the ironwork was made by us; but the patent was granted to Rowland Burdon, esq., M.P. The ironwork was done by his order and under his direction, whose invention we believe the principle on which Wearmouth Bridge is constructed to be, and different from either that of Coal Brook Dale or Thomas Paine's. We suggested to Mr. Burdon the propriety of taking out a patent, which is granted only on the oath of the party, and believe that he is the first and true inventor.—We are, &c.,

JOSHUA WALKER & Co.

Rotherham, August 23rd, 1796."

FIRE PROOF FLOORS.

I NOTICE in your issue of the 8th inst. a letter by Mr. W. H. Lascelles describing his dry system of fire-proof floors, which I mean on the present occasion to refer to. Ever since the introduction of cement and iron for building purposes, I have considered it possible to supersede to a very large extent the use of bearing and supporting timbers in all classes of buildings, and thus reduce the risk of damage by fire to an impossibility. The introduction of a dry system is, I think, a step in the right direction; but it also seems to me that practice has considerable improvements to make on Mr. Lascelles' system. I should be inclined to make the section of the joist for an 8 ft. span 7 in. by 3½ in. instead of 6 in. by 4 in. The use of iron in combination with the concrete is an absolute necessity; it has to supply the tenacity requisite to resist a transverse strain, a quality the concrete does not possess to any extent. I agree with Mr. Lascelles that small pieces are quite effective, provided there are enough of them, and placed near the under-side of the joist; the placing of them near the upper edge appears to me to be quite unnecessary, as it is well known that only the under-side of a joist is in tension. There is also a danger in adopting plain hoop-iron, for it will to some extent divide the adhesion of the concrete, and thus in course of the general vibration a floor is subject to would be likely to cause a permanent injury. I would recommend that the hoop or hoops should be perforated, so as to allow the concrete, when wet, to secure a better combination with the iron.

The quantity of iron Mr. Lascelles uses for each joist represents a bar 2 in. by ¼ in., which, in simple tension, would be expected to suffer a strain of about five tons; this at once leads to the idea that a much better combination could be effected than that described. Instead of inserting the iron in three pieces, as done by Mr. Lascelles, I would suggest that it should be used in one piece (a 1-in. diam. round rod), secured at each end at the upper part of the joist, and bowed in the centre to the lowest part of the joist, in such a way as to give to every joist the nature of a trussed girder, and thus obtain the full benefit of the tension of the iron. There would be cast-iron end-plates, and with holes to allow the ends of the rod through, and to be tightened up with a key.

I entirely agree with the size of covering slab described, but do not think the diagonal pieces of iron add any strength to it; they might be useful in case of the slab being cracked, as they would tend to keep the pieces together.

I fear that ceilings can hardly be dispensed with (except in warehouses or workshops), and I think the forming of them with slabs as described by Mr. Lascelles would be open to objections. They would add considerable weight

to the floor, the concrete joists would be weakened by the insertion of nail-holes; the slabs would be unhandy to fix, which would lead to carelessness on the part of the workmen; and, indeed, there are many other practical objections I could point to, which the vibrations of floors would subject to such a mode of fixing.

The ordinary lath-and-plaster ceiling could be used with every propriety. Small V-shaped grooves, about ½ in. deep, could be cast in the joists close to the under edges; the laths cut to the proper length, and driven tightly into these grooves, with the plaster applied in the usual way: this would make a much better job for lightness, safety, and finish.

A building, with concrete or brick division walls, concrete joists and flooring, lath-and-plaster ceilings, and an iron roof, may be, with every propriety, classed a fireproof building; and, if you will, the laths could be dipped in a fireproof solution at a trifling expense.

These are my opinions, which are gathered from practical experience, and given only as opinions, wishing success to strong and cheap fireproof floors, which necessity in all classes of buildings demands. A. D. Hogg.

WATERPROOF ROOFS.

Sir,—Your kindness in inserting my letter (p. 1244, *ante*.) on fireproof floors emboldens me to address you on another detail of house-construction.

I noticed a few weeks back you had a leader on this subject, and you there expressed your opinion that our slate and tile roofs were in many respects faulty, and capable of improvement. The wooden rafters might, I think, be dispensed with, and iron rafters of any approved section substituted, say 3 ft. apart. These rafters might be encased in concrete, if thought advisable. I would then bed slabs of concrete, 3 ft. long, 2 ft. wide, and 1 in. thick, on the rafters in cement, and connect them with iron clips, which clips could also be constructed to hold an iron rod or a wood lath for fastening the tiles or slates to the roof, or the concrete could be covered with metal if preferred. By this means the roof would be quite fireproof, and nothing would be in it liable to decay. The iron rafters with the concrete slabs would not cost much, if any more, than the ordinary wood rafters with boards and felt, and would make a much better roof.

No fear need be felt as to the strength of the slabs. I have used them repeatedly for this purpose on wooden rafters without any covering whatever, although I cannot advise their use for dwellings without a covering of some kind. They weigh about 7 lb. to the superficial foot, and are 3½d. per foot super.

In case of fire the great point is to prevent its breaking through. Once a draught is created, destruction soon follows. A perfectly fireproof roof is a desideratum.

When wet penetrates under the roof-cover it is most essential it should not saturate anything liable to decay. Concrete is not injured by it; and painted or galvanised iron rods are equally impervious.

I think a roof constructed on the above principle would be superior in many respects to existing roofs. W. H. Lascelles.

THE PAVEMENT AT THE YORKSHIRE FINE ART EXHIBITION.

Sir,—I was much pleased to see in your paper of last Saturday that Messrs. Craven, Dunnill, & Co. have been awarded a silver medal by the Committee of the York Fine Art Exhibition for the excellency of their pavement at the above Exhibition. I beg to inform you that the cement used there was the make of John Bazley White & Bros. of Gracechurch-street, London, supplied through myself as their agent, and as the cement forms no inconsiderable part of tiling, I trust you will give this the same publicity, as we like to share the honour if we can, and in this instance it has been fairly earned. I may also state that I find your journal the best medium for information of its kind I know, my father and self having taken it for fully thirty years. J. Lister Nichols.

Relief Works in Ireland.—The *Freeman's Journal* believes that it has been decided by the Irish Executive to commence works of improvement on the River Shannon. The works are to be commenced at once, and pressed on during the winter, as a reproductive public work calculated to afford relief to the labouring classes. The expenditure on the Shannon works will probably not exceed 50,000*l*.

FLATS.

Sir,—Your correspondent, "Londoner," rather under than over states his case. The newly-erected flats in Victoria-street,—Members' Chambers, I think they are called,—let for 75*l*. per room, the rooms for which this enormous rent is obtained being exceedingly small, and by no means remarkable either for light or convenience. The real advantages, indeed, of the flat system, either for comfort or economy, have never yet been brought out in London, whilst the eagerness with which even the most imperfect specimens are snapped up, at rents far exceeding those obtainable for equivalent accommodation in separate houses, shows how great and general the appreciation of its benefits is becoming. Your readers may perhaps be interested in knowing that a scheme is now on foot for erecting, close to a suburban station of the Metropolitan Railway, a block of buildings on the plan of "Adams's Elastic Flats." This building will be divided into thorough self-contained flats, with perfect sanitary arrangements, and ample light and ventilation throughout, and containing from four to fourteen rooms each. It is estimated that, if let only at the same rate as similar accommodation commands in the neighbourhood, the return will be at least 12½ per cent. Economy.

RE PLASTERERS.

A circular, issued by the Builders' Association, with the above heading, having been sent to the builders (and master plasterers, what few there are) in London, urging them, in consequence of the scarcity of plasterers throughout the country, to at once take measures to employ apprentices, also to encourage the sons of plasterers learning the trade, in order to increase the number of efficient men; further alleging, as a reason for the so-called scarcity, the non-employment of hawk-boys,—I should be glad to make a few remarks as to hawk-boys.

One of the best things yet done for plasterers, and all connected with buildings, has been the disbanding of those boys; they were, as a rule, boys of the lowest class, and a constant plague and source of annoyance wherever they were. Whenever any mischief or damage was done, rightly or wrongly, the plasterers' hawk-boys always had the credit of it.

The plasterers of London should rejoice that the hawk-boys are abolished. The man who was the first to discontinue their use, about twenty years back, has lived to see his system adopted throughout London and in many country towns, although at that time the plasterers' societies called special meetings to bring his men out on strike, but lost the vote by a small minority.

As to the scarcity of plasterers, at the present time in London there are more men calling themselves plasterers seeking employment than can find it.

But as to efficient men, that is another question, and a question not easily answered while the present system of "labour only," or task-work, is so much the order of the day. Such men are passing away, and will become extinct unless other means are adopted than at present. What are those means to be, and who is to take them?

Competition is so rife in the building trade that builders know not how to complete the work for the price they take it at. Day-work is too costly; the recourse is task-work. Thus it is let to whoever comes in the way; quantity is the order of the day, quality is not considered; to get it done and to get away is the rule.

So long as this class of men can get a Saturday night with a few shillings over the ordinary wage, or be lucky enough to put in a "light one" or "dead one,"—terms well known,—what care they? I maintain these are not the men to train up apprentices to become efficient mechanics. The master plasterers, men who in former years were apprentices themselves, and took an interest and delight in their work, men who were able to instruct and train up apprentices, are becoming obsolete; if any person would take the trouble to inquire, he would not find so many efficient and practical master plasterers in London as in many provincial towns, especially in the Northern districts, where each trade is respected and encouraged, and whence we at present obtain many of our best men. Where is the remedy? I maintain that it is only in the hands of architects and the workmen themselves. If the architect or his clerk of works would take steps in order to abolish the "labour only" system, and insist upon the work being executed in an efficient manner, and the plasterers themselves refuse to work for these taskmasters, we might be looking forward to a better state of things. As it is, builders will not be troubled with apprentices, neither will respectable people apprentice or send their sons to work for these so-called master plasterers.

That these few remarks may be the means of eliciting inquiries as to the present condition and future welfare of plasterers in London, is the earnest desire of one who has made his trade his study and delight.

A Plasterer.

P.S.—It must not be supposed that I include all under the ban; there are honourable men on both sides, but few in comparison with the many.

ARCHITECTS AND CORPORATIONS.

TALLAND SCHOOL BOARD *v.* TREVAIL.

At the Liskeard County Court on the 17th inst., before Mr. M. Bere, judge, and a jury, the Lansallos and Talland United District School Board brought an action against Silvanus Trevail, architect, Tywardreath, to recover the sum of 30*l*. 9*s*. 7d., money alleged to have been had and received by him for the use of the plaintiffs. Mr. B. Childs appeared for the plaintiffs, and Mr. Collins, of Bodmin, for the defendant.

Mr. Childs, in opening the proceedings, said his clients had occasion to build some schools, and engaged the defendant as architect, and he gave some idea of what the probable cost would be. It was agreed that he should be remunerated at the rate of five per cent. upon the building outlay, and be allowed all reasonable travelling expenses. This was ratified in the presence of the whole Board, and Mr. Trevail drew up the plans and specifications for the new buildings, the probable cost of which he told the Board would be 1,400*l*. or 1,600*l*. Invitations for tenders were issued, but the amounts were so much in excess of the sum mentioned by Mr. Trevail that the Board was astonished, and said it was impossible for them to erect such a costly building. They thereupon asked Mr. Trevail to reduce the plans so as to diminish the cost of the building. This was done, and the ultimate cost of the building was 1,765*l*., on which the Board argued the defendant was only entitled to five per cent., and his reasonable travelling expenses. His clients had from time to time paid Mr. Trevail sums of money on account, and altogether he had had 30*l*. in excess of his proper remuneration of five per cent. His clients had pointed out to Mr. Trevail that they had paid this money in error, and asked him to refund it. This he had declined to do, and had put in a counter-claim for professional services, arguing that the amount he had obtained was only fair and proper remuneration.

John Gould Lakes, residing at Polperro, formerly clerk of the Board, said he remembered Mr. Trevail coming before the Board, and suggesting that he should be paid five per cent. on the building outlay, and reasonable travelling expenses.

Thomas Mills, chairman of the School Board, corroborated this statement.

His Honour.—You are a corporate body, and cannot enter into a contract without affixing the corporate seal. You must show a proper legal contract between yourselves and Mr. Trevail.

Witness, continuing, said a minute resolving to reduce the plans was entered on account of the excess of the tenders over the cost estimated by Mr. Trevail. He accordingly modified the plans, and on the 26th of March, 1877, the tenders were again sent in, and that of Mr. Godfrey, of Liskeard, accepted for 1,550*l*. Mr. Trevail was not in constant attendance on the work, and witness had had to advance money because he had not the architect's certificate to pay the builder out of the public funds.

Cross-examined.—Was present at the meeting when the Board sent 127*l*. to Government as the architect's charges. Witness signed the application himself. Mr. Godfrey's contract was afterwards increased from 1,550*l*. to 1,600*l*.

Edwin Hill, master of the Board school at Polperro, made out a list of the furniture he would require, and from an illustrated list of desks produced by Mr. Trevail he selected those required, and Mr. Trevail, who was sending up an order to London, asked witness to let him order them, which he did.

Mr. Childs.—That is my case, your Honour.

His Honour.—There is nothing before the Court yet.

Mr. Childs.—I submit that he contracted to do the work at a remuneration of 5 per cent.

His Honour.—You have not proved the outlay.

Mr. Childs.—There is the architect's certificate of an expenditure of 1,785*l*. 17*s*. 6d.

His Honour.—The estimated cost on the first plan was 2,250*l*., and the question is, what was the agreement between the Board and Mr. Trevail,—whether it was to pay upon the work considered in the first specification, or whether on the actual cost.

Mr. Collins, in defence, urged in the first place that the agreement in the minute, not being sealed with the corporate seal of the School Board, was not valid; and that money paid with a full knowledge of all the circumstances in the case could not be recovered, and quoted cases in support of this view.

His Honour.—The first point is a very strong one, but I do not like to shut up the case upon that.

Silvanus Trevail, architect, stated that he arrived at his first estimate of 2,250*l*. as being a proper outlay on the first set of plans. He charged them at that price, and gave the Board the benefit of the alterations for a less costly building, for which he had to make fresh plans, the expense of which would be about twenty-five or thirty guineas. He attended the meeting of the Board especially to consider the subject of the furniture of the schools. He ordered it, and had been accustomed in other schools to receive commission on such orders. He made a charge of

two guineas for the measurement of some extra work not in the plans. He had made thirty-one journeys altogether to Polperro.

Cross-examined.—No minute was read over to him at the meeting of the Board when he first made the bargain. He told the Board that he must have his "incidental expenses." Had never told any member of the Board that the cost of the schools would be about 1,500*l.*

By the Jury.—When the Board agreed to reduce the cost of the building, it was decided that witness should be paid for his trouble in altering the plans.

His Honour said he should submit five questions for the consideration of the jury. The agreement was clear and distinct that the architect should be paid five per cent. upon the building outlay, and his reasonable travelling expenses. The first sum, which was admitted to be fairly and properly paid, was 89*l.* 5*s.* 5*d.*, as commission upon the 1,785*l.*, which was the actual sum the school had cost. The first question was, what was a fair remuneration for the second set of plans? Mr. Trevail had prepared one set of plans, accompanied by specifications, which made the Board tremble about the cost they were about to incur. They asked Mr. Trevail to prepare a fresh set of plans, and he was of opinion that he was entitled to be paid a fair amount of money for his trouble and expense. The only evidence they had of the amount to which the architect was entitled was that of Mr. Trevail himself, who set it down at from 25*l.* to 30*l.* The next question was, was the defendant entitled to any commission on the price of the school furniture, or for the trouble he took in ordering it? The letters from the Board showed clearly that they had consulted Mr. Trevail in the matter. Was defendant entitled to any payment for measurement of extra work? and, if so, was two guineas,—the sum mentioned by Mr. Trevail,—a fair sum? Another query was, how many journeys did defendant make, and what was he entitled to be paid? And lastly, was he entitled to any sum for stationery, postage, &c.?

The jury, after a brief consultation, found Mr. Trevail entitled to 15*l.* for the second set of plans, two guineas in the matter of ordering the furniture, his full charge of two guineas for the measurement of extra work, and his full charge of 11*l.* 11*s.* 4*d.* on account of his journeys. They awarded nothing on the question of postage, stationery, &c.

His Honour reserved judgment, in order to consider the technical objections offered by Mr. Collins.

UNHEALTHY BUILDINGS.

A STRANGE COLLISION.

At Southwark, Edward Nutfield, as the agent to the owners of 52, 53, and 55, Gun-street, situate between the Borough-road and the Blackfriars-road, inhabited by costermongers and haddock-smokers, was summoned before Mr. Bridge, by Mr. Edwards, the sanitary inspector of St. George's Vestry, for refusing to obey the order of Mr. Partridge to have the houses cleansed, repaired, and put in a habitable condition, the state they were in being injurious to the health of the inhabitants.

Mr. Lambert, from the Solicitors' department of the Metropolitan Board of Works, said he appeared to support the defendant, who was their agent, and he contended that they had complied with the notices and orders of the magistrate. The houses in question, and a great many others, had been acquired by the Metropolitan Board of Works under the Artisans' Dwellings Act, and arbitration was pending as to the sum to be paid under the Lands Clauses Act; consequently, some of them were tenanted; but he was authorised to say that they were habitable and not injurious to health.

Mr. Bridge thought it was something absurd to find one Board seeking for penalties against another when the tenants could be easily removed.

Dr. Waterworth, the medical officer of health of St. George's Vestry, here stated that the whole area at the back of the Borough-road on the north side was in a very unhealthy state, and the houses had been for a long time in such a filthy state as to be dangerous to the health of the inhabitants. If the houses in question were not closed or pulled down they ought to be properly repaired and cleansed.

Mr. Bridge thought that if a deputation of the Vestry waited upon the Metropolitan Board the houses might be closed within a reasonable time. He adjourned the summons for a month.

The Board of Works have been placed in a false position by some of their officers.

PAVEMENT LIGHTS.

HAYWARD *v.* HAMILTON AND ANOTHER.

This was an action before Mr. Justice Hawkins and a Special Jury, in the Exchequer Division, for the infringement of a patent for improvements in the construction of pavement lights.

Mr. Webster, Q.C., and Mr. E. Carpmael appeared for the plaintiff; Mr. Aston, Q.C., and Mr. Macrory for the defendant.

The plaintiff is an engineer in Union-street, Borough, and the defendants are also engineers, carrying on business in Kingsland-road. On the 31st of July, 1871, letters patent were granted to the plaintiff's brother, now deceased, for "improvements in pavement lights," which substantially consisted of a mode of introducing in glazed pavement or area lights glass prisms of a particular shape, by means of which the light was thrown in a given direction,—for instance, into a room or cellar. The plaintiff's case was that the defendants, one of whom was formerly in his employ as foreman, had infringed this patent by manufacturing pavement-lights upon a similar principle. The defendants denied the novelty of the invention, and said that prisms of the kind claimed had been in common use prior to the date of the patent by manufacturers of reflecting telescopes, and engineering, optical, and mathematical instruments for the purpose of reflecting light.

After hearing the evidence on both sides, which was chiefly of a scientific character, the jury answered the questions put to them in favour of the plaintiff, and found that the defendants had infringed the plaintiff's invention.

The Judge entered a verdict for the plaintiff, but gave leave to the parties to bring the questions of law involved in the case before the Divisional Court.

The Sheffield Operative Plumbers struck on Monday against a proposed reduction of wages.

Books.

A Digest of Cases relating to the Construction of Buildings, and the Liability and Rights of Architects, Surveyors, and Builders in relation thereto. By E. Stanley Roscoe, Barrister-at-Law. London: Reeves & Turner, Chancery-lane. 1879.

With our permission, and at the suggestion of several of our readers, Mr. Roscoe has issued as an inexpensive little book the Digest of Cases relating to the Construction of Buildings, which originally appeared in this journal. It includes all the cases which have as yet been decided in regard to the erection of buildings, so that "any one who is professionally interested in this subject, whether as lawyer, architect, or builder, will be able, within a small space, to find any point arising directly out of building operations which has hitherto been decided after an argument in court." It does not, however, include decisions arising out of the Metropolitan Building Act, and local statutes, as these are to be found elsewhere. To the digest, Mr. Roscoe has added Forms of Pleadings, Building Agreements and Leases, and recognised Conditions of Contracts. The volume will be found very useful.

"*The Science of Taste.*" We have received several letters from the author of this volume (noticed at p. 1220, *ante*), asking for a justification of the opinion expressed of his design for the improvement of the entrance-gate at Hyde Park-corner. We decline, of course, any discussion of our review; but if he will lend us the engraved block illustrating his design, we will insert it, and allow our readers to judge for themselves.

SCHOOL BOARD SCHOOLS.

Halifax.—The formal opening of the Haugh Shaw-road Board Schools, Halifax, took place on the 10th inst. The schools have been erected from the designs of Messrs. Leeming & Leeming, architects, whose plans were selected in competition. The style adopted is Elizabethan. The building provides accommodation for about 800 scholars, with separate school-rooms for the boys, girls, and infants, and ten class-rooms for their joint use. Cloak-rooms, lavatories, and other conveniences are provided. Cross-ventilation of the school and class-rooms is provided by natural means, and in every room throughout Shillito & Shorland's patent ventilators are applied for admitting fresh air, which can be regulated at will. For extracting the vitiated air, Boyle's system is used. No plaster has been used on the walls, which are pointed and walled in Flemish bond. A painted brick dado runs round the rooms and corridors throughout, and is finished with a glazed brick capping. The cost of the building, together with the boundary walls, playgrounds, seating, &c., has been about 6,800*l.* The following contractors have carried out the work: Masons, Messrs. Fearnley & Firth; carpenters and joiners, Messrs. Charnock & Sons; plasterer and slater, Mr. Alfred S. Blackburn; plumber and glazier, Mr. John Naylor; painter, Mr. John Binns; asphalters, Messrs. Haigh & Ballough; whitesmiths, Messrs. Hirst Brothers; heating-apparatus fixers, Messrs. J. & J. Butterworth. Mr. R. J. Bryan has acted as clerk of works.

Sheffield.—On the 10th inst., Sir John Brown, the chairman of the Sheffield School Board, formally opened a new Board school in Burton-street, off Langsett-road. The buildings are in two blocks, one containing the boys' department, with play-shed and a house for the caretaker, and the other containing the infants' department on the ground-floor, and that for girls on the upper-floor. The boys' department consists of a large school-room, with two large and two smaller class-rooms; the girls' department consists of a school-room of considerable height, three good class-rooms, and a larger class-room, which contains special fittings for cookery lessons; the infants' department comprises a main school-room, with two class-rooms in connexion, and a smaller school-room for junior infants, to be called the "babies' room". The total accommodation provided is for 300 boys, 320 girls, and 340 infants. The buildings are of stone, with rock-coursed facing and ashlar dressings, and the rooms throughout have dados of varnished pitch-pine, all the lobbies and staircases being lined with glazed bricks. The cost was 10,700*l.* Messrs. Innocent & Brown are the architects.

Miscellanea.

Value of Theatrical Property in London. The great value of theatrical property in London is illustrated by the circumstance that Messrs. Gatti, as appears by the report of the hearing of their action against Mr. Webster the other day, hold mortgages on the Adelphi Theatre to the extent of nearly 46,000*l.* "Probably" (says a writer in the *Daily News*) "60,000*l.* would be a moderate estimate for the market value of the freehold; and we believe that the cost of building another theatre of about the same size, which will shortly be erected immediately behind the main street on the other side of the Strand, including the plot of ground, is 55,000*l.* Even such large capital sums as these, however, obviously do not prevent London theatres from yielding remunerative rents. The nominal rent of the Adelphi, specified in Mr. Webster's lease to Mr. Chatterton for twenty-one years from January, 1874, was, as appears from the same report, 2,550*l.* a year; but it also appears that there was an arrangement substantially equivalent to a premium of 16,000*l.* The present estimated value of the Adelphi is, we believe, nearer 4,000*l.* a year, which would, of course, represent an excellent return for a capital of 60,000*l.* invested in property of that kind. In considering the position of theatre landlords, and of their lessees, it is to be borne in mind that over and above the specified rent the tenant not only pays parish rates and taxes, but, though protected by only a short lease, frequently executes, at his own cost, extensive alterations and improvements, and generally pays fire insurance. The latter item is especially burdensome, owing to the fact that the insurance offices,—not without reason,—regard every theatre as predestined to be destroyed by fire. Fifty shillings per cent. is a common insurance rate for theatres."

Destruction of Woolwich Pier. — An alarming occurrence took place on the River Thames, at Woolwich, on Monday afternoon, just before dusk. The *Canada*, one of the immense iron vessels of the National Line, on her journey to New York, with passengers and merchandise, was in tow of two powerful steam tugs, and her own engines were at work, while the arrangements on board as to the helm and the look-out are said to have been as exact as though the ship were at sea. When passing Woolwich Dockyard, the *Canada* was seen to swerve over to the starboard, apparently with the view of avoiding collision with some other vessel. The tide, which was still running up in considerable strength amidstream, seemed to carry the stern of the huge ship round, and her steerage power was probably lost for a few minutes, during which the speed, which remained unexpended, carried her inside Woolwich steamboat pier at Roff's Wharf, and she crushed through the bridge as if it were matchwood, emerging on the other side herself unscathed. The destruction of the pier is complete, the whole length of the bridge, which measures about 100 ft., being an utter wreck.

New Corporation Offices, Southampton. The Town Council of Southampton having, after a great deal of consideration, decided not to incur the expense of erecting a new Town-hall, but to provide new public offices for the Corporation on the Audit-house site, the contract was secured by Mr. John Crook, a native of the town, and for some weeks past Mr. Crook's workmen have been busily engaged in pulling down the old buildings, and preparing the foundations for the new structure. The corner or memorial stone of the new offices was laid on the 25th ult., by the Mayor (Mr. J. Blount Thomas, J.P.). The buildings are being erected from the designs of Mr. James Lemon, architect.

Memorial of the Late Princess Alice.—The Prince of Wales has just erected in the church of St. Mary Magdalen, Sandringham, a tablet to the memory of his lamented sister, Princess Alice (Grand Duchess of Hesse). The work, which has been executed by Mr. J. E. Boehm, A.R.A., consists of a medallion portrait in marble of the Grand Duchess.

Society of Arts.—On Wednesday evening the inaugural address of the 126th session of this society was delivered by Lord Alfred S. Churchill, who subsequently presented a number of medals and prizes offered by or through the Society.

West Kensington.—A new Wesleyan chapel, at the junction of the Netherwood and Brook Green roads, West Kensington-park, was opened on the 30th ult. The structure is early English in style, the materials being Kentish rag-stone, with Bath-stone dressings. At the north-west corner is a gabled and crocketed spire. The interior of the chapel consists of nave and aisles constructed with iron columns, and finished with cascades above the galleries. The whole of the interior woodwork is of picked yellow deal, stained and varnished, except the pulpit, which is of clean selected pitch-pine, decorated with sunk and relieved ornament. In the basement is a lofty schoolroom, flanked by class-rooms, the whole capable of accommodating upwards of 400 children. The chapel and galleries will seat 1,000 persons. The building was commenced November 30, 1878,—eleven months ago. Owing to the severe winter, however, the works remained stationary for three months; so that, actually, the structure has been erected in the short space of eight months. Mr. Charles Bell is the architect, and Messrs. Lucas & Son were the contractors. The immediate supervision of the building was in the sole charge of the contractor's foreman, Mr. Doody. The contract price was 6,860*l.*

Kensington Parish Church.—The top-stone of the spire of the new Church of St. Mary Abbotts, Kensington, was laid on the 15th inst., by the Vicar, the Hon. and Rev. E. Carr Glyn. The church, which has cost nearly 50,000*l.*, occupies the site of the old structure (pulled down in 1869), and was designed by the late Sir Gilbert Scott, R.A. A plan and external view were given in our volume for 1870 (pp. 8, 11), and an interior view will be found in our volume for 1872 (p. 927). The stone used is Kentish rag, with Box Ground for the facings and the spire. As *data* for comparison the following details may be interesting:—The total length of the church is 179 ft.; the breadth at the transept, 109 ft.; the height of the nave, 73 ft.; from the ground to the top of the vane on the spire the height is 278 ft., the tower being 112 ft., the spire 152 ft., the iron vane rising 14 ft. above the top-stone Of the eight old bells, three have been recast and two new ones have been added, by Messrs. Warner & Sons. The works have been executed by Messrs. Dove Brothers.

Wolverhampton Union Offices. — The foundation-stone of the new Union offices in St. Peter's-close, Wolverhampton, was laid on the 16th ult. The offices will be three stories high, and will be of brick, with stone dressings. On the ground-floor will be the private and general offices of the clerk to the Board, the relieving officers' department, the dispensary, and general waiting-room; on the first floor a consulting-room and caretaker's residence; and on the third story a store-room and attics. The offices will have a frontage of 81 ft. on the Horsefair side, and 53 ft. on the St. Peter's-close side, the angle being occupied by an oriel window terminating in a turret. The estimated cost is about 3,000*l.*, and the work, which is being carried out by Mr. David Evans, builder, of Dunstall-lane, from plans prepared by Messrs. Banks & Doubleday, architects, Wolverhampton, is to be completed by Lady-day next.

Honour to a French Architect.—The city of Marseilles has decided on the erection of a large marble bust, in honour of a Marseilles architect, M. Henri Esperandieu. "Never" (says the Paris correspondent of the *Times*) "was homage better deserved. If M. Esperandieu had built in Paris or any other great European capital what he has constructed at Marseilles, he would have left behind him the reputation of being one of the greatest architects of this century. I refer to the beautiful structure at Marseilles called the Palais de Longchamp. Unfortunately, it is not situated on a site worthy of it. The adjoining square, the promenade conducting to it, the side streets, and surrounding houses are mean-looking, ill-kept, unpicturesque, and ugly."

Fall of a Gallery.—On the occasion of a crowded political meeting at Dewsbury, on Tuesday, a terrible accident occurred, a large gallery at the end of the meeting-place,—a skating-rink,— falling a distance of five or six yards, and carrying with it about 250 or 300 people, nearly all of whom were working men. Twenty or thirty persons were injured, and four deaths have taken place. Buildings receiving large numbers of persons ought to be periodically examined.

Sewage-Farm Produce at Bedford.—The mangolds, swedes, and carrots on the Bedford Farm were sold by auction on the 10th inst., and, with the exception of the swedes, they commanded more than the prices of past years. The crops, though good for the season, did not reach the weight sometimes attained. There were times when the liquid sent down from the town along with the storm water could not be distributed on the land, for the rainfall alone at the adjacent observatory at Cardington amounted to no less than 1,900 tons an acre during the past six months. At the auction the carrots ranged from 15*l.* to 20*l.* an acre, being an average of over 16*l.* For the swedes 9*l.* to 10*l.* was obtained, and the rates for mangolds ranged from 13*l.* to 19*l.* The farm extends to 180 acres, and the rent is fully 5*l.* an acre. There is a large part used for growing market-garden crops, and onions, for example, average 30*l.* an acre, and in the rotation there is from 24 acres to 30 acres in Italian rye-grass, which does not average more than 12*l.* an acre, while it ought to make 20*l.* The supply of this grass has always been in excess of the demand, and the Corporation has (according to the *Bedfordshire Times*) in consequence resolved to build dairy and piggery premises, with yards and shedding. These buildings, which are approaching completion, will accommodate from twenty to thirty cows.

The Architectural Association's Session, 1879-80, commences this (Friday) evening, the 21st., when the esteemed president, Mr. S. Flint Clarkson, will deliver an address. On the 5th prox. the annual *conversazione* will be held. The syllabus of papers for the remainder of the session promises the following:—

Dec. 19, 1879, "Common Sense in Architecture," by Mr. Cole A. Adams; Jan. 2, 1880, "Architectural Illustrations and their Classification," by Mr. R. L. Cox; Jan. 16, "Soul Bay and its Churches," by Mr. Basil Champneys; Jan. 31, "Competitions," by Mr. Robert Walker; Feb. 13, "The Domestic and Civil Architecture of Germany between 1500 and 1700," by Mr. H. W. Brewer; Feb. 27, "Structures between the Piers of Ground-Story Arcades in English Churches," by Mr. T. J. Willson; March 12, "Famous Kentish Houses," by Mr. S. W. Kershaw, M.A.; April 23, "Haddon Hall, Derbyshire," by Mr. T. Roger Smith and Mr. R. E. Smith; May 7, "Unrest," by Mr. E. Ingress Bell; May 28, "Some Old Italian Architects and their Works, with Thoughts on an Architect's Education," by Mr. W. Scott; and, June 11, "The Special Planning and Arrangement of Sunday Schools," by Mr. C. G. Maylard.

The new "Brown Book" shows the Association to have 811 members, 630 being resident in London, and 181 elsewhere.

Art in Liverpool.—At a recent meeting of the Notes and Queries Society, Mr. Hall Caine advocated the establishment of a life-school in Liverpool. He said it was an astonishing, almost a shameful thing, that, whilst Manchester had two life-schools (notably one at its Royal Institution), and Edinburgh and Aberdeen a good life-class each, and London several such classes, Liverpool was without anything of the kind at all worthy of its name and of the place it took in English art. He thought a life-school should be started under corporate auspices, and supported by public funds. It only needed that some one should move first in the matter, and then we should have some chance of a real school of art in Liverpool.

Obituary.—Mr. John Hanvey, C.E., Borough Surveyor and Town Engineer, Dover, has died somewhat suddenly. A few days ago he went to his office and transacted his business as usual, but, having had a hard day's work, he complained that he was unwell and fatigued. He was advised to ride home, where his housekeeper left him to get him some tea; on her return she found he had expired, the cause of death being apoplexy, brought on by disease of the heart. Mr. Hanvey is spoken of as a most efficient public officer. For some years he was engaged on the Birkenhead Dock Extension Works; thence he went to Gloucester as the city surveyor; and thence, in 1860, he went to Dover.

Fires.—Early on Sunday morning last St. Leonard's Established Church, in Edinburgh, was destroyed by fire. It is supposed that the fire was caused by the overheating of the stove. The church was only opened about seven months ago, and was erected at a cost of between 7,000*l.* and 8,000*l.*——On the same day, also early in the morning, the mansion known as High Grove, Eastcote, near Pinner, the residence of Sir H. Hume Campbell, bart., was totally destroyed by fire. The only occupants of the mansion at the time of the outbreak were the female domestic servants. The fire is attributed to a defective flue.

Canterbury Cathedral has been re-opened after being closed to the public for about two months for the purpose of re-pewing the choir. The authorities engaged the services of the late Sir Gilbert Scott to act in conjunction with their architect in devising plans for re-pewing the choir, and for other proposed works. Ultimately, the plans submitted were adopted, and ordered to be carried into execution under the direction of Mr. J. O. Scott, son of the designer. The carving was entrusted to Messrs. Brindley & Farmer, of London. The cost of the re-pewing, exclusive of alterations to gasfittings, hot-water apparatus, new flooring, &c., amounts to 6,000*l.*, and the whole expense will probably fall little short of 10,000*l.*

The Shoreditch Tabernacle.—The new Tabernacle in connexion with the Baptist cause in the East of London has been opened. The new building, which takes the place of one formerly on the same site, is built to seat 3,000 persons. It has already cost 10,000*l.*, but the Rev. W. Cuff, who is the pastor, contemplates spending 20,000*l.*,—a school, a club, and other works of a like character being projected.

The West Kent Main Sewerage Board have accepted the tender of Mr. Henry Potter, of Stepney (amount 30,428*l.*), for an extension two miles and a half long of their main sewer from Holloway Farm, near Bromley, Kent, to Beckenham. The sewer will be constructed principally of concrete. Sir J. W. Bazalgette, C.B., and Mr. Alfred Williams are the engineers.

The Elgin Marbles.—"H. F." says, "There is a statement in Mr. Mahaffy's recent book on Modern Greece which has, I should think, startled all who have read it. It would seem that a large part,—I think it says half,—the original collection of the Elgin Marbles are now in shallow water off the Greek coast."

Fatal Fall of Buildings in Tottenham Court-road.—On Thursday morning some old buildings in Tottenham Court-road which were either in course of alteration or demolition, suddenly fell in, burying about a dozen men. One death is reported as we go to press.

Remains from Ephesus.—During the past week the remains of an ancient frieze, with reliefs, have been received in the Old Museum at Berlin.

TENDERS

For the erection of the North London Hospital for Consumption, Hampstead. Mr. T. Roger Smith, architect. Quantities by Messrs. Mann & Saunders. Contract No. 1.

Hobson	£11,246 0 0
Aldin	10,706 0 0
Stimpson	10,633 0 0
Thompson	10,330 0 0
Roberts	10,289 0 0
Holland	10,112 0 0
Higgs & Hill	9,980 0 0

For alterations and additions to the Duke of Abercorn public house, High-street, Kensington, for Messrs. Watney & Co.:—

	Gross amount.	Less old materials.
King	£1,263	£10
Auley	1,100	15
Hockley	1,098	18
S. & G. L. Mann	1,095	20
Grimwood & Sons	1,093	20
Hook & Oldrey	1,085	20
Stimpson & Co.	1,078	45
Wells	970	20

For building three villa residences in the West Green-road, Tottenham. Mr. Spencer W. Grant, architect:—

	Pair of semi-detached.	Detached villa.
Bange	£2,047	£1,070
Williams & Son	1,845	970
Horlock	1,800	1,000
Edgar	1,793	968
Pocock	1,795	954
M'Cowan	1,700	992
Bell	1,670	671

For new residence, Fitz-John-avenue, Hampstead, for Mr. T. Uzielle. Mr. Thomas, architect:—

Macey	£5,290 0 0
Thorn	5,025 0 0
Patman & Co.	4,932 0 0
Chappell	4,860 0 0
Burford	4,830 0 0
Manley (accepted)	4,770 0 0

For alterations and additions to Nos. 7 and 8, Denbigh-mews, Notting-hill, for Mr. Egg. Mr. Lewis, architect:—

Gellatley	£598 0 0
Bowden	512 10 0
Roberts	339 0 0

For alterations and repairs to the British Queen public-house and to No. 37, Cumberland-market, for Messrs. Garrett, Whitaker, & Grimwood. Mr. Percy Hunter, architect:—

Falkner	£448 0 0
Gould & Brand	418 0 0
Mark	330 0 0
Horton (accepted)	327 0 0

For two engines and boilers in connexion with sewerage works, Belgrave, Leicester. Mr. E. F. Stephens, C.E.:—

Tipping & Co.	£1,427 0 0!
Turner	1,220 0 0
Bridges & Son	1,220 0 0
Emerson & Co.	1,215 0 0
Ruston, Proctor, & Co.	1,160 0 0
Atlas Engine Company	1,140 0 0
Sharples	1,080 0 0
Cameron	1,000 0 0
Howarth	990 0 0
Jackson	977 0 0
Scott & Son	956 0 0
Holliday	950 0 0
Richardson	892 15 0
Tangye Bros.	880 0 0
Bagshaw & Son	869 0 0
Coalbrooke Dale Company	850 0 0
General Engine and Boiler Co.	842 0 0
Wood, Baldwin, & Co.	831 0 0
Spencer & Gillett	806 0 0
Walker, Eaton, & Co.	800 0 0
Wolstenholme	775 0 0
Pontifex & Wood	750 0 0
Rice & Co.	746 19 6
Jessop	713 13 0
Appleby Bros.	680 12 0
Gimson & Co.	635 10 0
Withenshaw & Co.	593 0 0
Murray	565 0 0
Warsop & Hill (accepted)	525 0 0
Grimsley & Co.	490 0 0!

Robertson; Roberts; Richards, Glaskin, & Co.; and Oldamedge Boiler Works Co., were informal.

For painting and decorating the interior of St. Swithin's Church, London stone. Mr. T. E. Knightley, architect:—

Keddle	£488 0 0
Land	485 0 0
Ramsey	448 0 0
Motter	443 0 0
Greenwood	430 0 0
Harrison & Wood	419 0 0
Mansfield (accepted)	380 0 0
Pitman (too late)	345 0 0

For alterations and additions to the Stapleton Hall Tavern, Crouch-hill, Hornsey, for Mr. Chamberlain. Mr. J. Viney, architect:—

Williams & Son	£1,135 0 0
Lamble	1,037 0 0
Atherton & Latta	880 0 0
Jackson & Todd	852 0 0
Burch & More	833 0 0

For house in the Avenue, Eltham-road, Lee, for Mr. G. T. Mackley. Mr. W. T. Gates, architect; Mr. S. Young, surveyor:—

Kiddle & Son	£2,049 0 0
Tongue	1,950 0 0
Outhwaite	1,943 0 0
Grover	1,823 0 0
Jerrard	1,797 0 0
Staines & Son (accepted)	1,796 0 0

For villa residence, Bedford, for Mr. R. H. Coombe. Mr. John Usher, architect:—

		Boundary walls.
Hull	£1,490 0 0	£97 0 0
Knight & Boston	1,438 9 6	111 19 0
Lilley	1,445 0 0	112 0 0
Corby	1,398 0 0	111 0 0
Spencer (accepted)	1,377 15 0	110 0 0

For converting existing premises at Bedford, into a coffee tavern for the Beds Coffee Tavern Company, Limited. Mr. John Usher, architect:—

Harrison	£488 0 0
Freshwater	465 0 0
Long	460 0 0
Adams	455 0 0
Moore	438 10 0
Potter	410 0 0
Hull	400 0 0
Lilley (accepted)	391 10 0

For St. Alban's Public Library and School of Science and Art. Mr. W. H. Syme, architect. Quantities supplied:—

Dove Bros.	£2,395 0 0
Miskin	2,122 0 0
Savage	2,081 10 0
Turner	1,999 15 0
Longmire & Burge	1,970 0 0
Clifford & Gough	1,968 4 0
Rayment & Son (accepted)	1,935 0 0

For alterations and additions to Meadow Bank, Hampstead. Messrs. Spalding & Evans, architects. Quantities by Mr. Geo. Fleetwood:—

Evans	£912 0 0
Grover	880 0 0
Outhwaite & Son	845 0 0
Roberts Bros.	821 0 0
Saunders	795 0 0
King & Brown (accepted)	791 10 0

For alterations at the Pilot Hotel, Gunnersbury. Mr. J. O. Cook, architect:—

Mark	£370 0 0
Raymes	260 0 0
Harris	210 0 0

For erecting four additional warehouses, Bucknell-street, Oxford-street. Mr. W. S. Trehearne, architect:—Downs & Co. (accepted).

TO CORRESPONDENTS.

G. A.—M. A.—J. R.—S. R. L.—J. J. M.—Dr. J. W. B.—J. F.—E. K.—L.—C. F. M.—J. F.—S. C.—H. St. J.—J. J. H.—M. & C.—N. S. & H.—W. A.—H. T. W.—P. H.—S. F. C.—A. W.—J. L. N.—C. D. & Co.—S. & Son.—S. & C. M.—H. & W.—A. G.—J. P.—M. M.—P. J. B.—H. Bros. (agent for New Zealand).—O. & L.—C. R.—Mr. D.—W. T. (we see no reason why use should not be made of the maps for the purpose mentioned).—W. B. D. & Co. (should have sent list and amounts).—M. D. (not yet).—J. D. H. (next week).—A mass of correspondence too late to be considered.—J. H. (similar matter was already in type).—F. P. (too late).

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

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